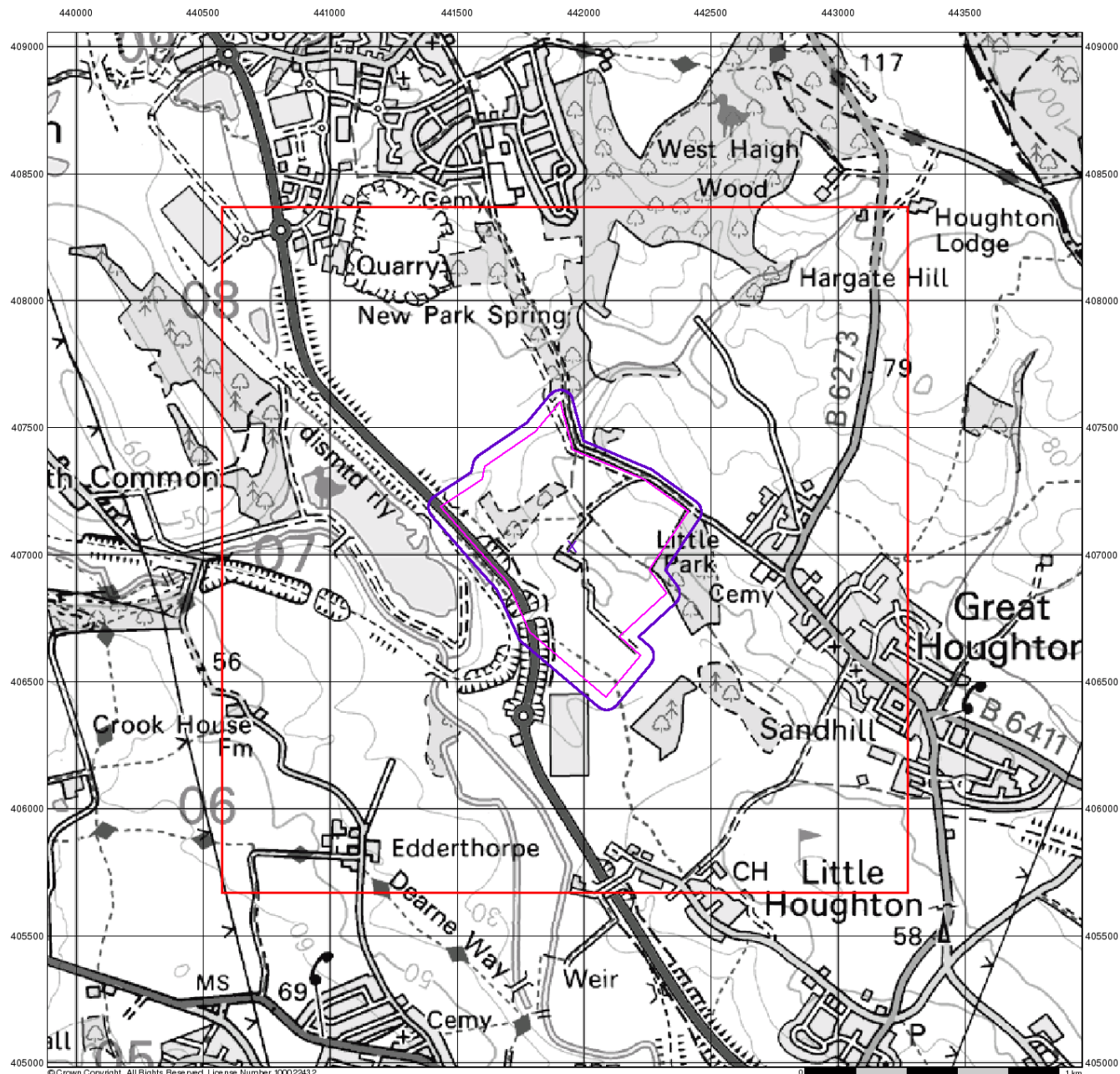




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Source Protection Zones

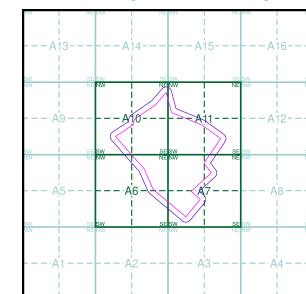
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

- Source Protection Zone I
- Source Protection Zone II
- Source Protection Zone III
- Zone of Special Interest
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



Order Details

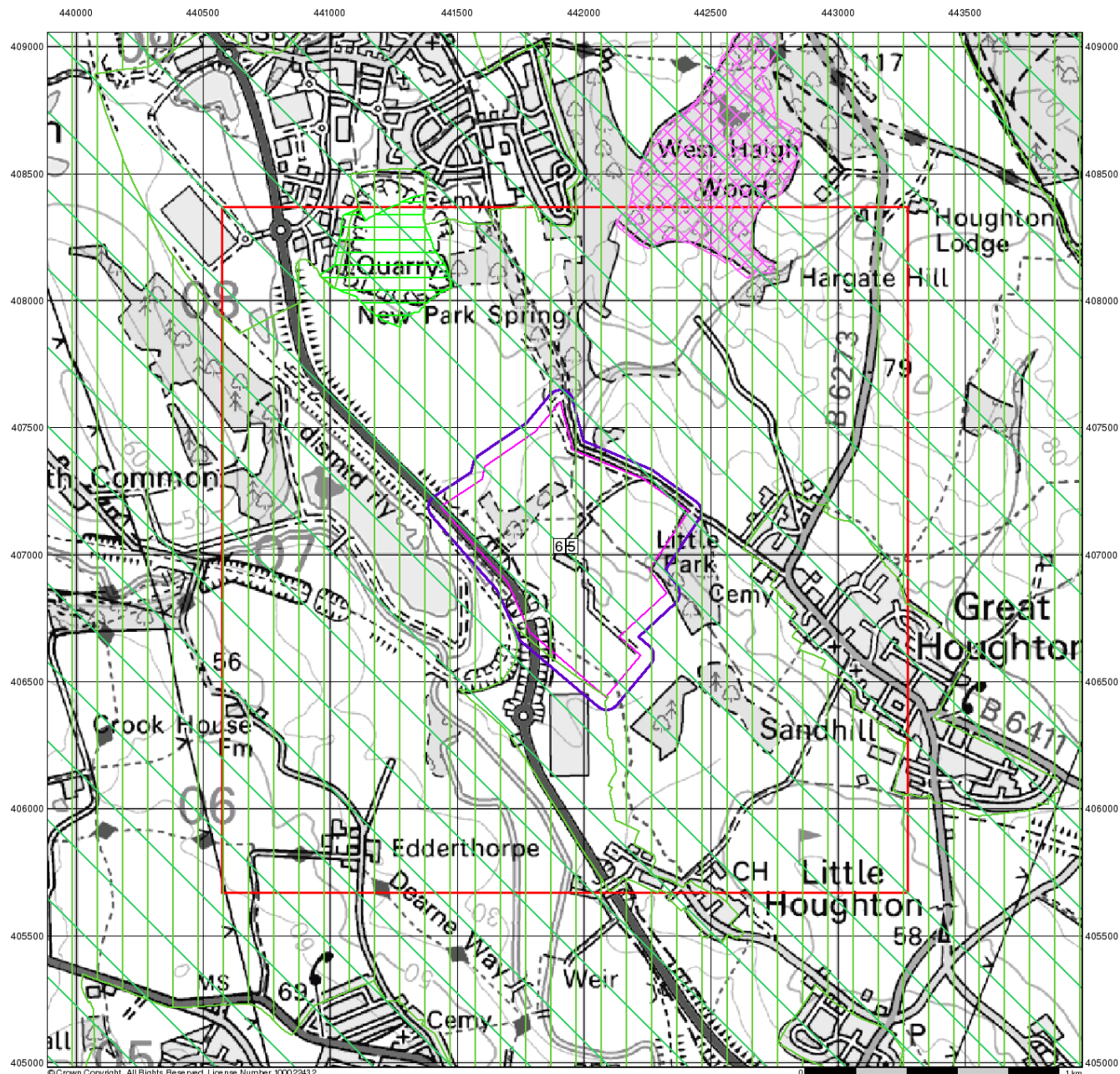
Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring



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Sensitive Land Uses

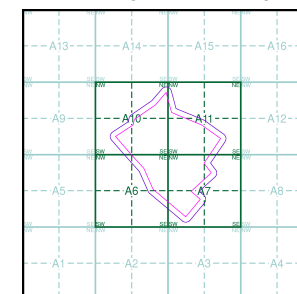
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Sensitive Land Uses

- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area

Site Sensitivity Context Map - Slice A



Order Details

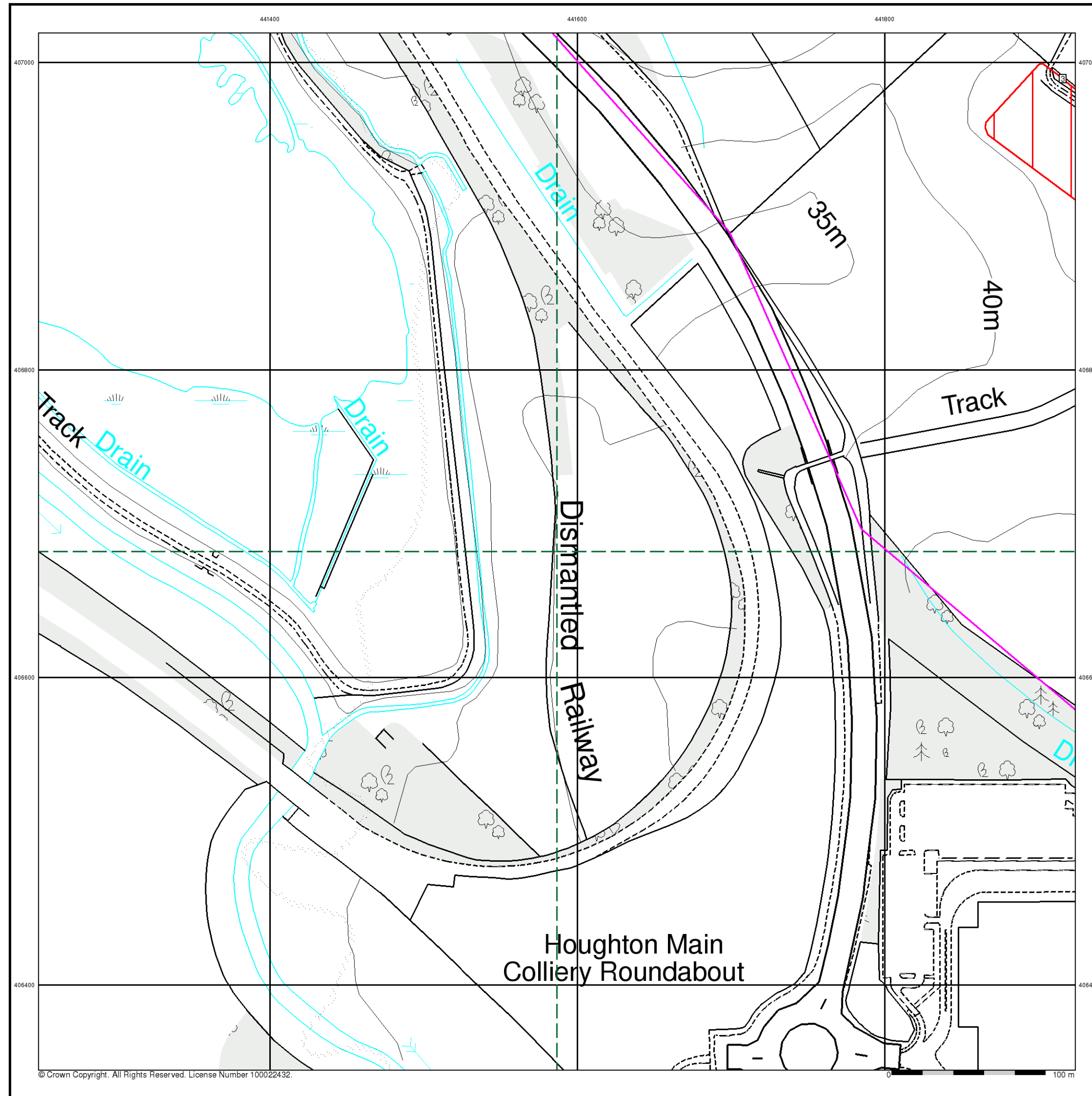
Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring



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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral
- BGS Recorded Mineral Site

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

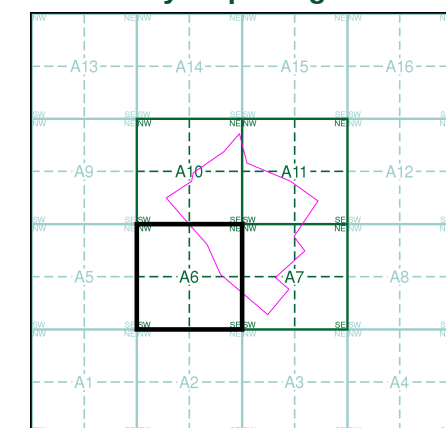
Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Site Sensitivity Map - Segment A6



Order Details

Order Number: 43477419_1_1
Customer Ref: Park Spring
National Grid Reference: 441950, 407030
Slice: A
Site Area (Ha): 54.44

Site Details

Park Spring



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Web: www.envirocheck.co.uk

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

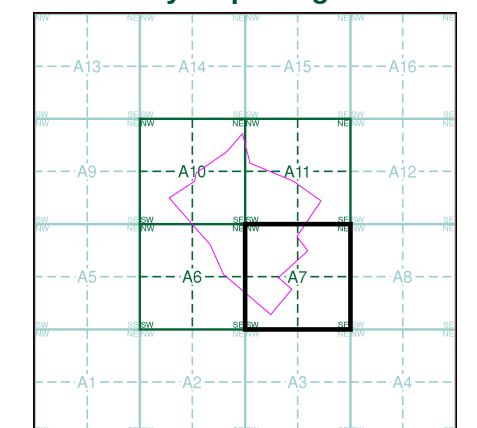
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Segment A7

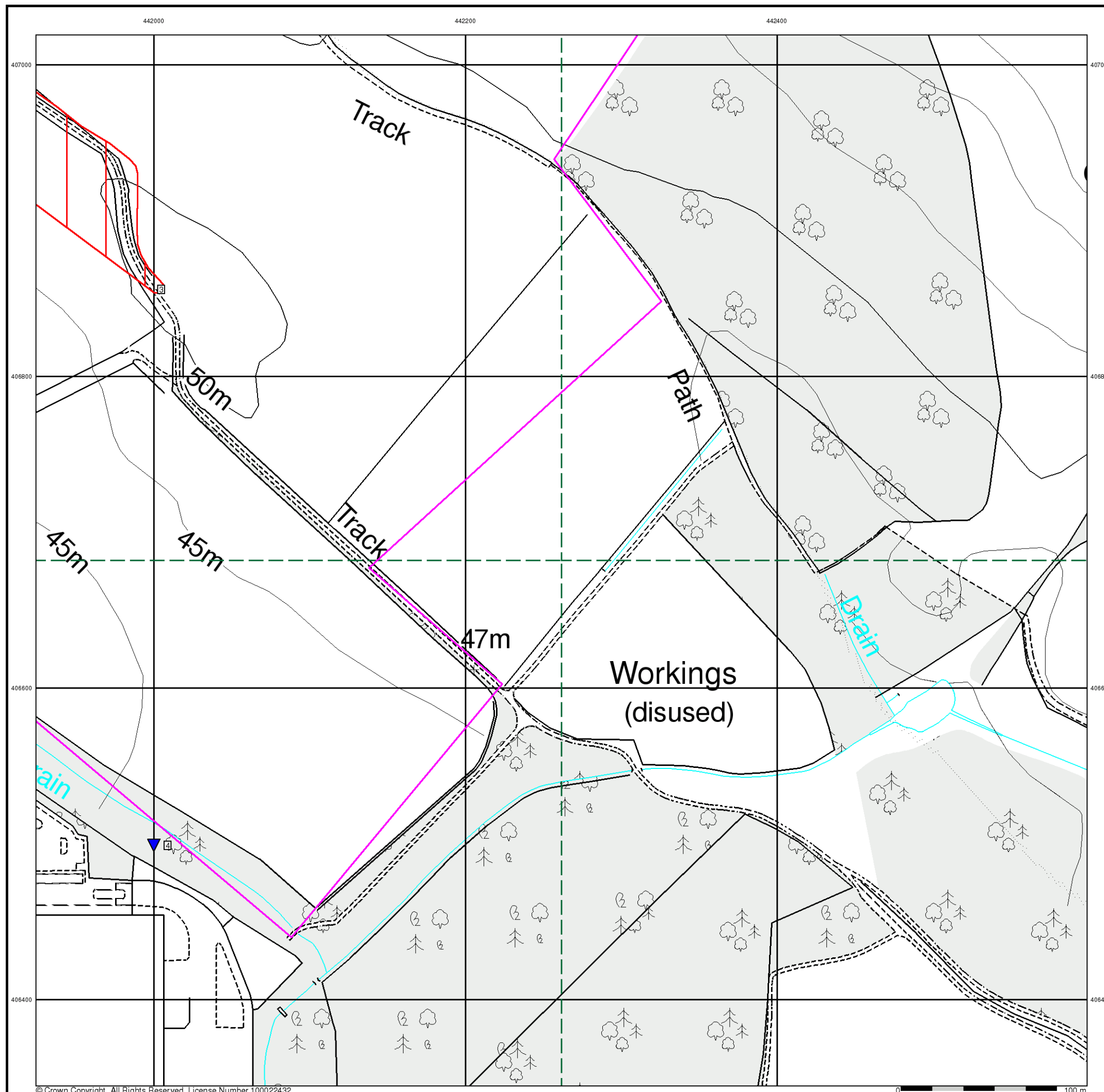


Order Details

Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44

Site Details

Park Spring



General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

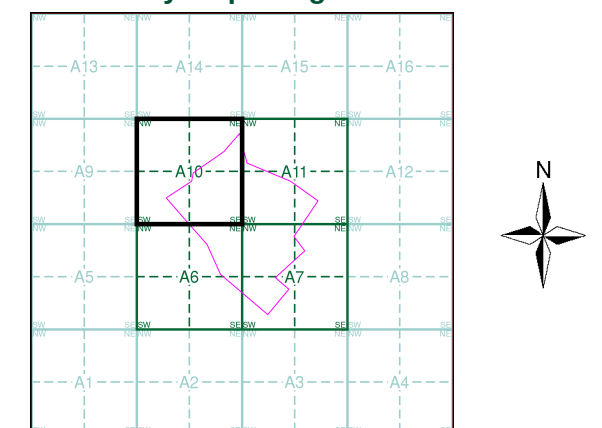
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Segment A10

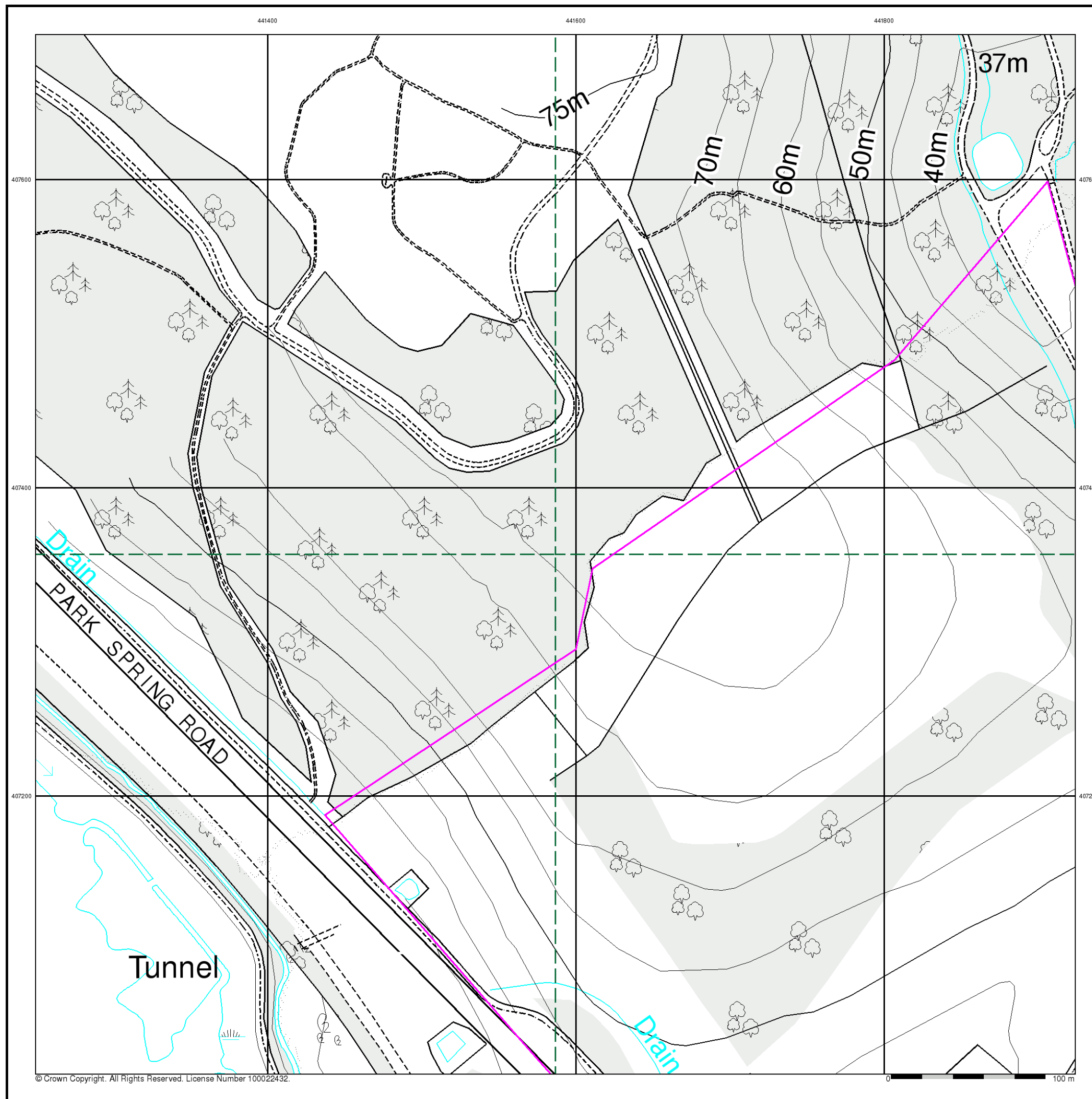


Order Details

Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44

Site Details

Park Spring



General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

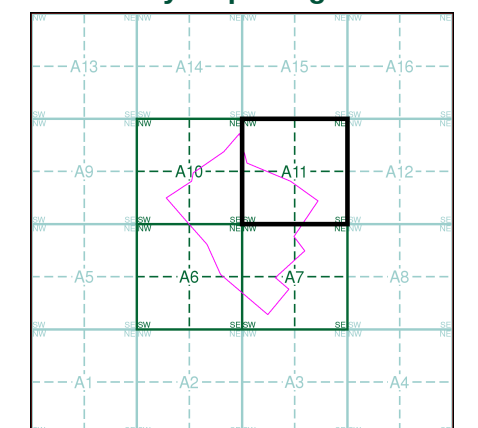
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Segment A11

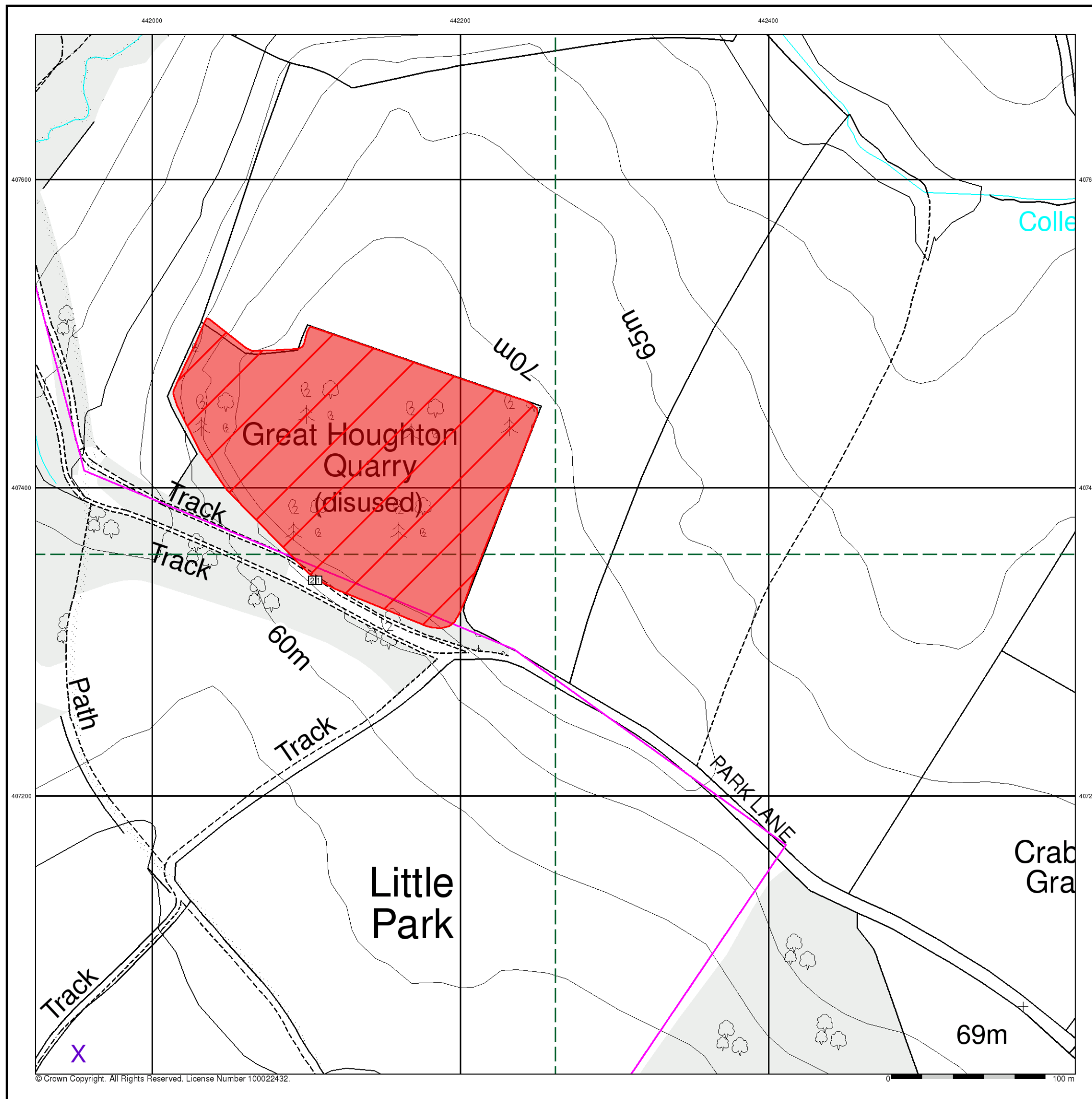


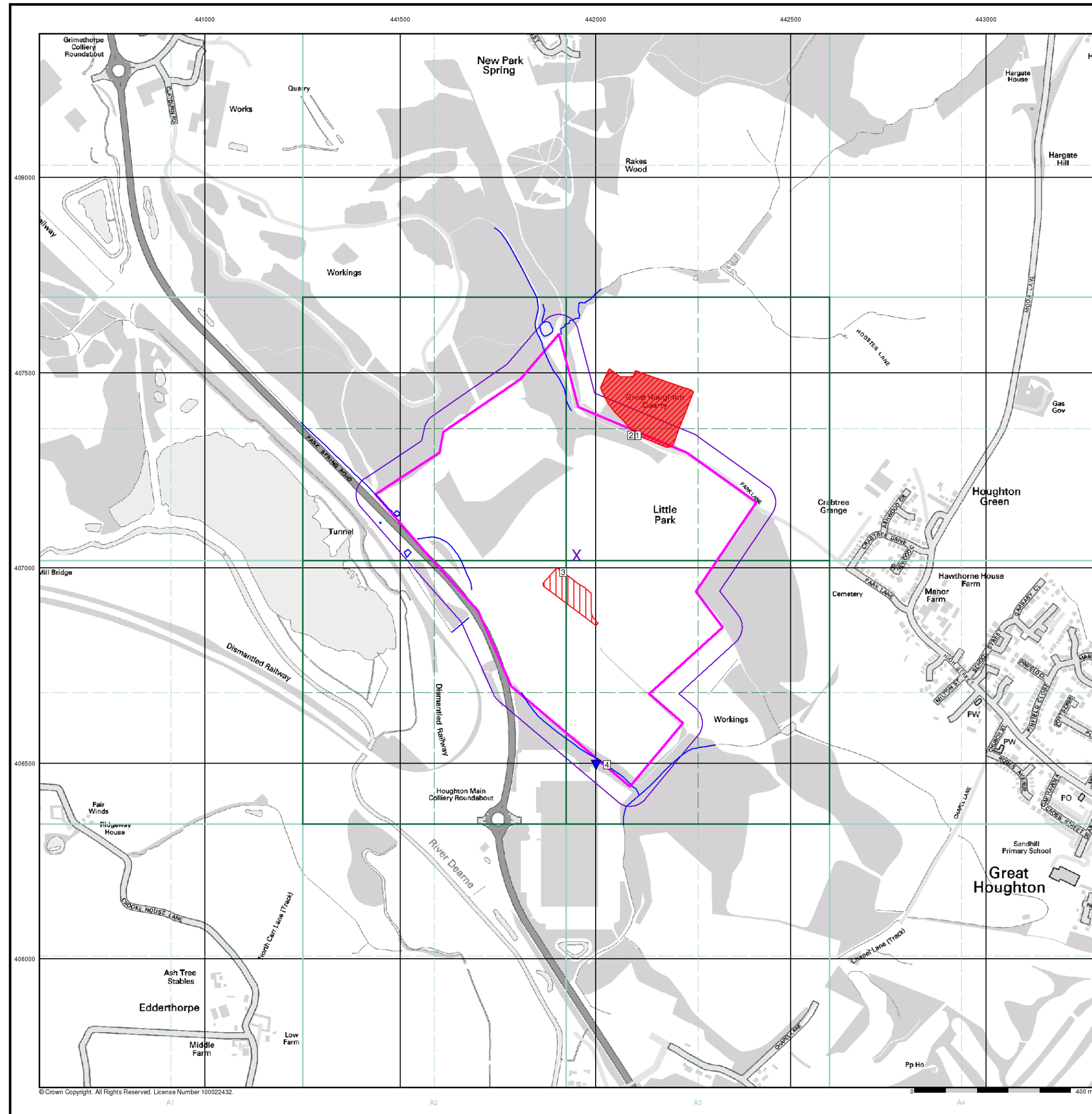
Order Details

Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44

Site Details

Park Spring





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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
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- Local Authority Pollution Prevention and Control
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- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
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- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

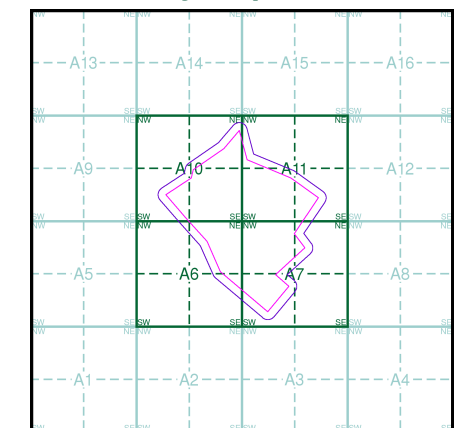
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Slice A



Order Details

Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring



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 Web: www.envirocheck.co.uk

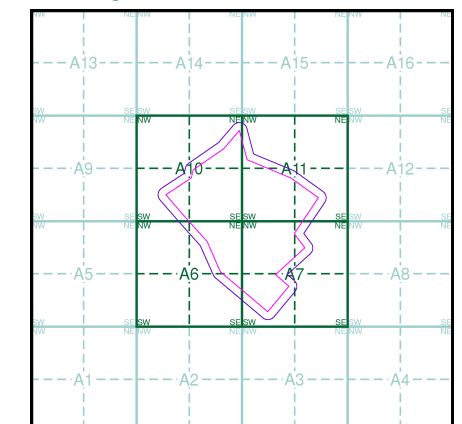
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

Agency and Hydrological (Flood)

-  Extreme Flooding from Rivers or Sea without Defences (Zone 2)
-  Flooding from Rivers or Sea without Defences (Zone 3)
-  Area Benefiting from Flood Defence
-  Flood Water Storage Areas
-  Flood Defence

Flood Map - Slice A

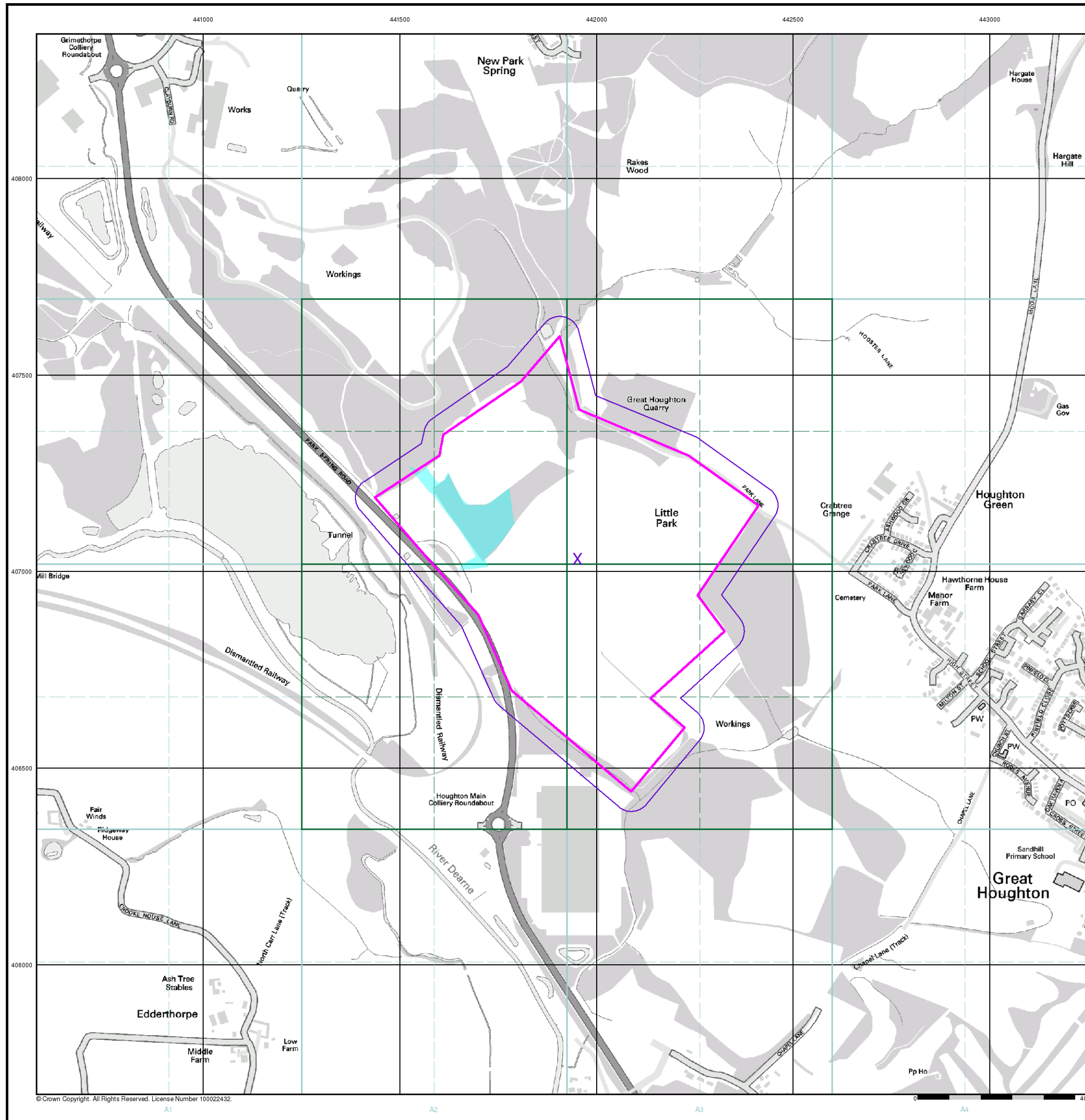


Order Details

Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring



General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID
-  Several of Type at Location

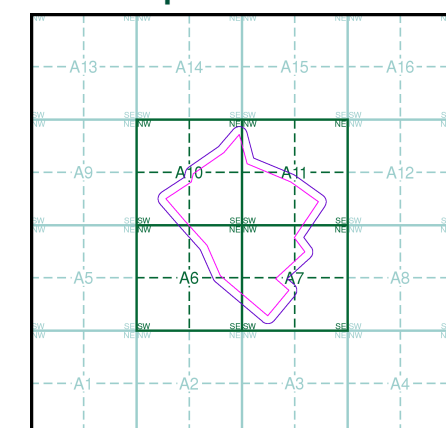
Agency and Hydrological (Boreholes)

-  BGS Borehole Depth 0 - 10m
-  BGS Borehole Depth 10 - 30m
-  BGS Borehole Depth 30m +
-  Confidential
-  Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A

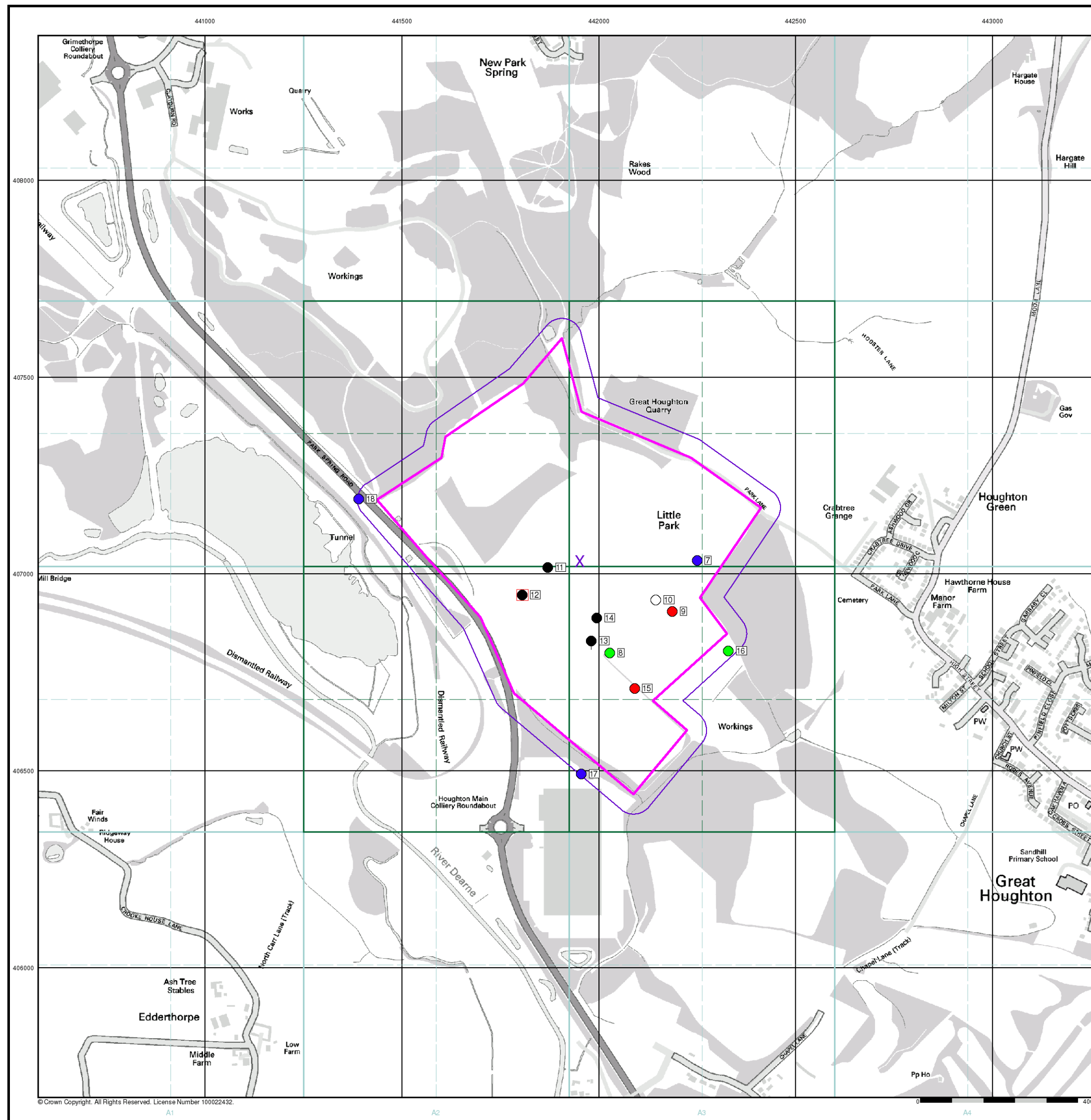


Order Details

Order Number: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring

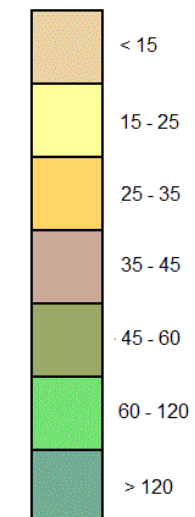


General

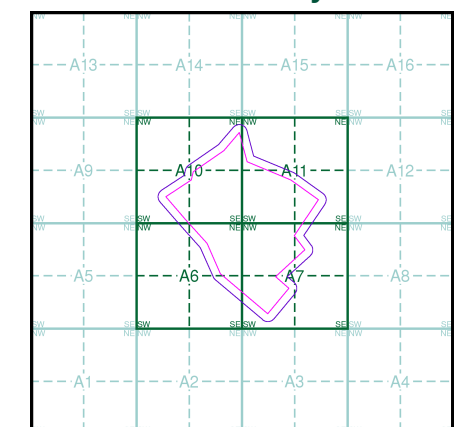
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



Estimated Soil Chemistry Arsenic - Slice A

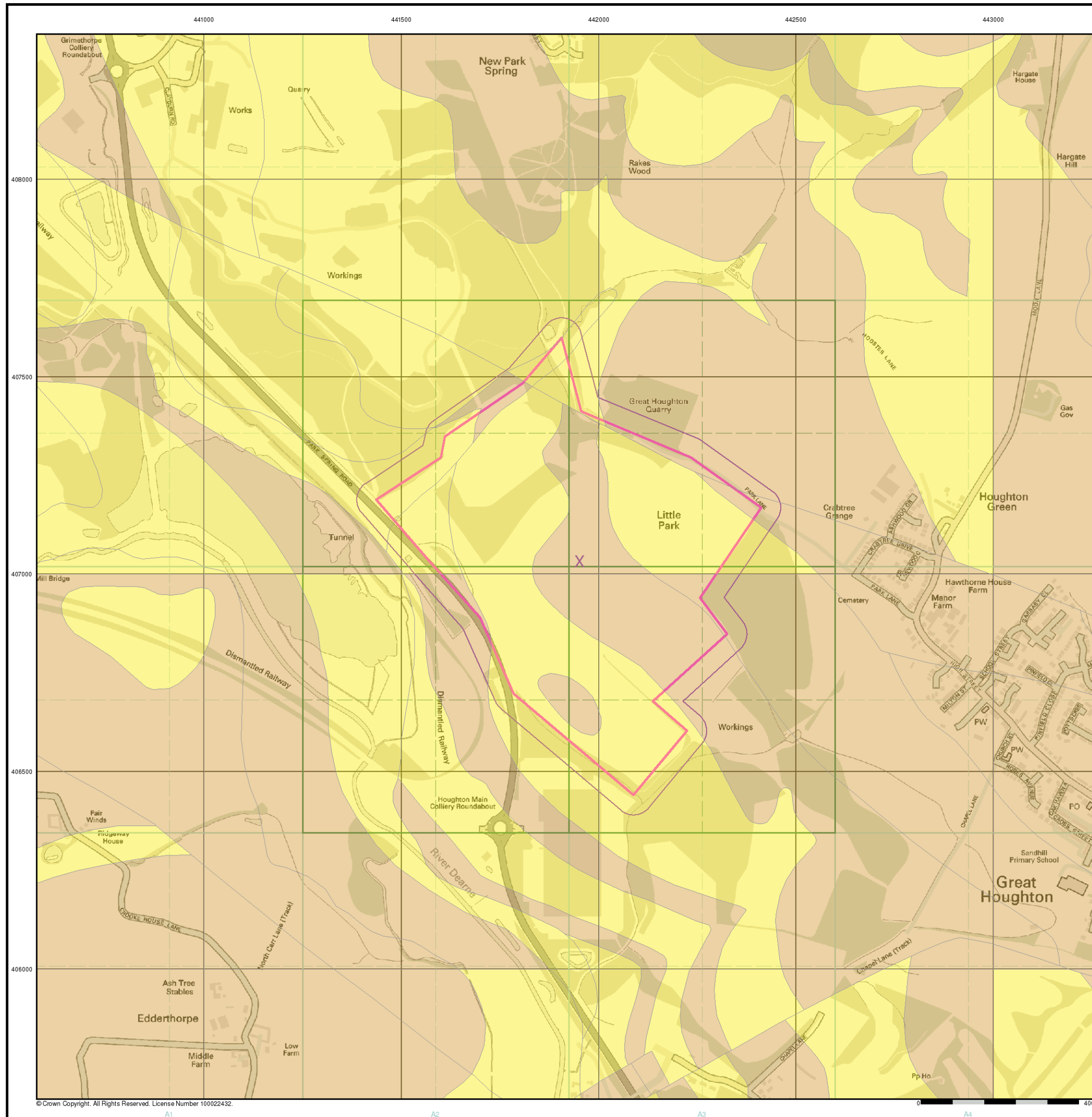


Order Details

Order Details: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring

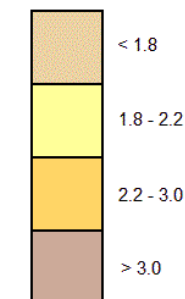


General

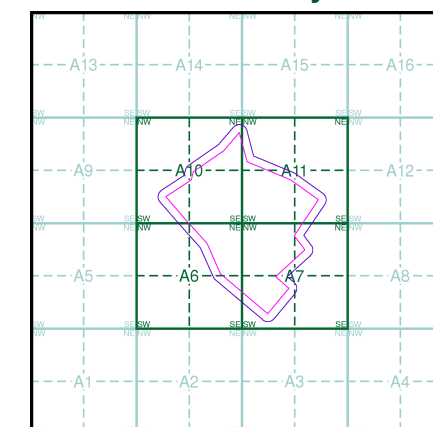
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A

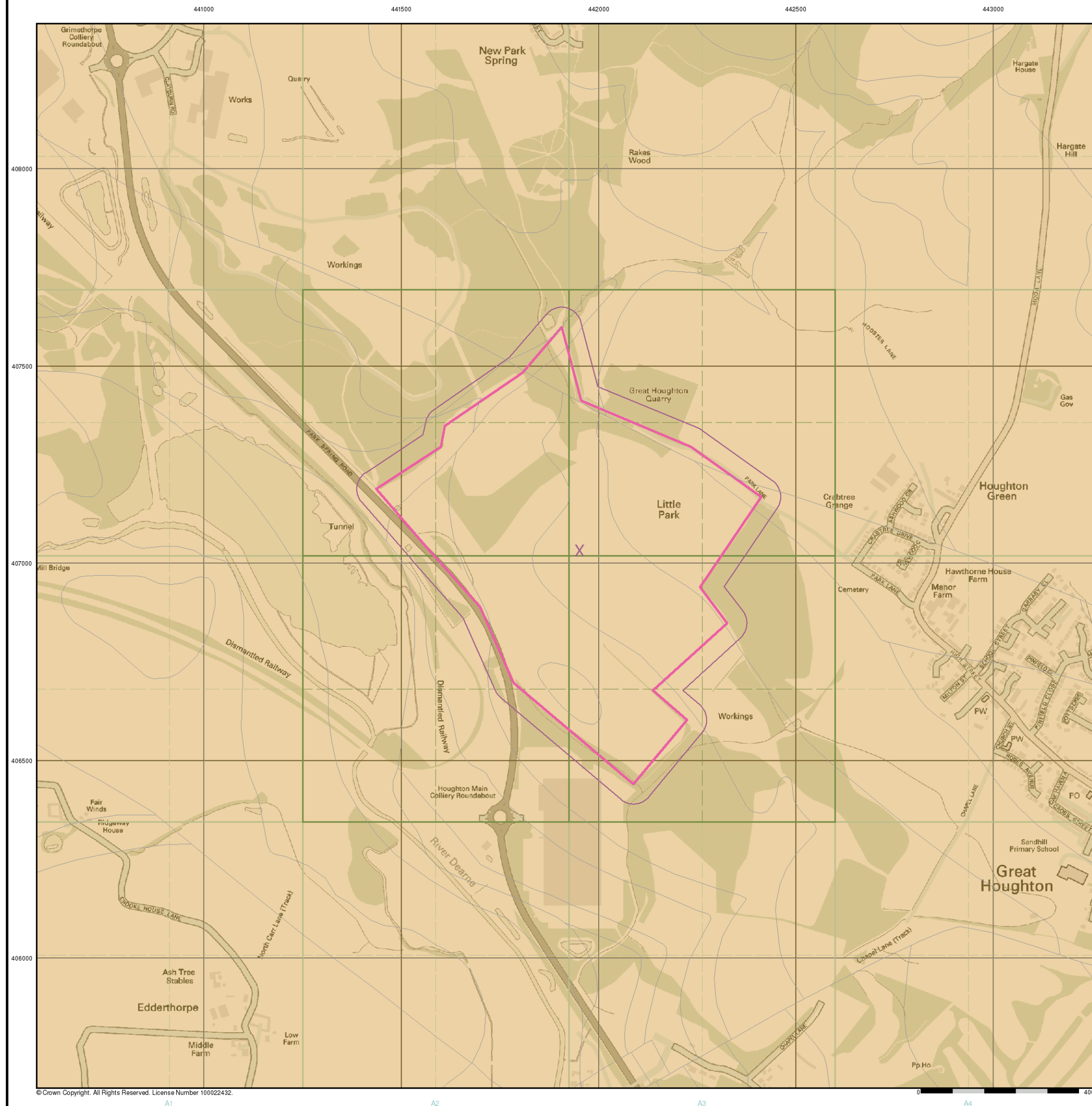


Order Details

Order Details: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring

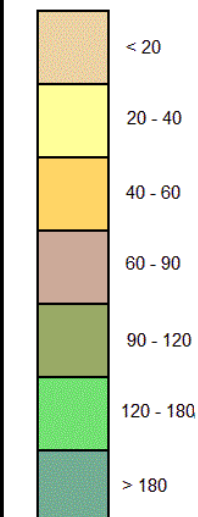


General

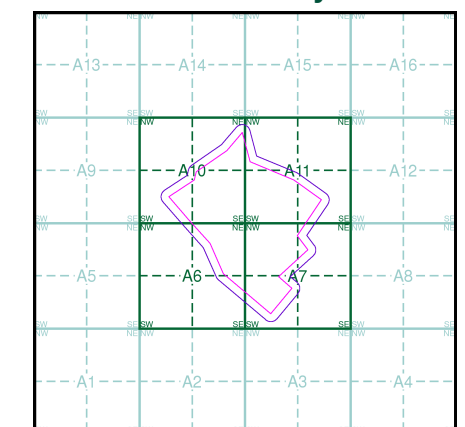
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



Estimated Soil Chemistry Chromium - Slice A

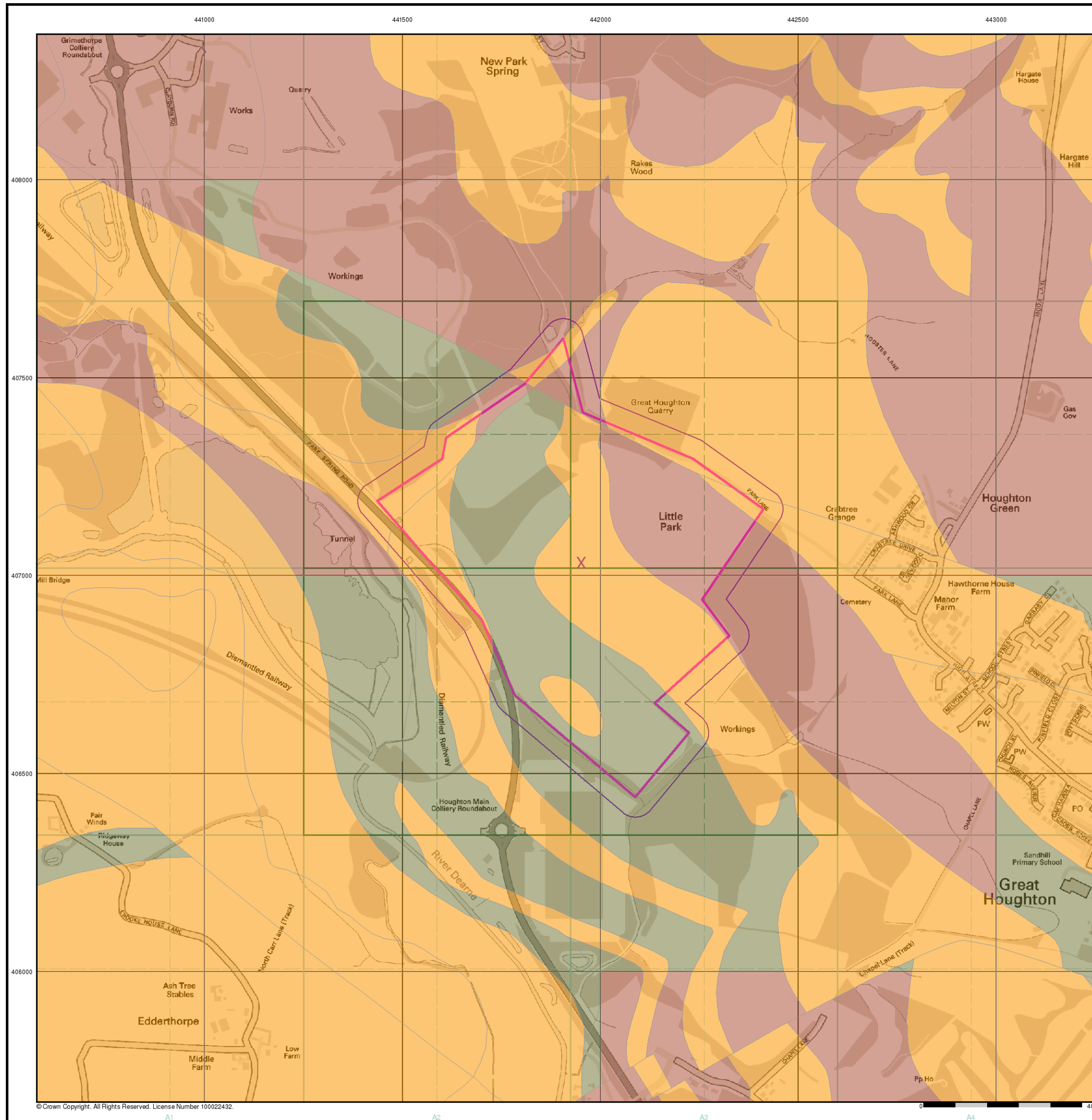


Order Details

Order Details: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring

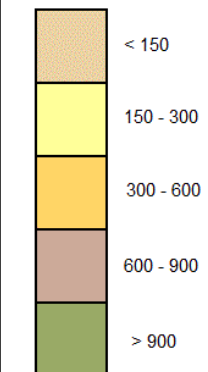


General

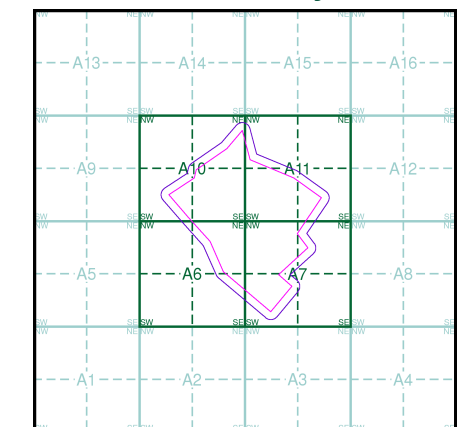
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A

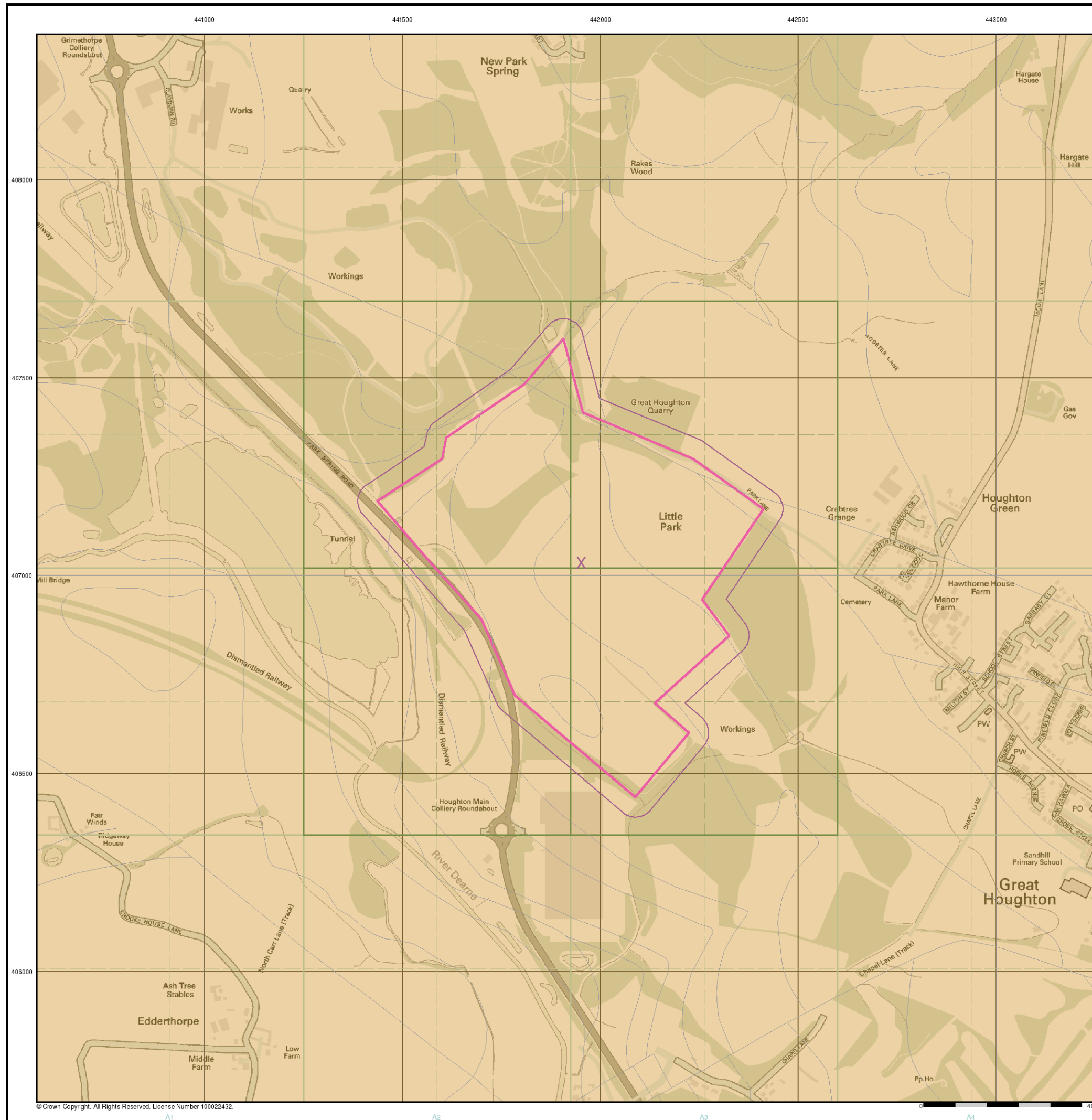


Order Details

Order Details: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring

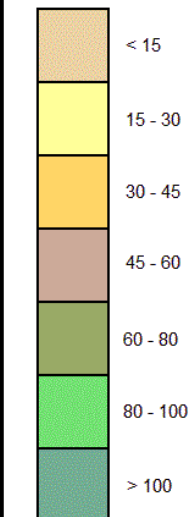


General

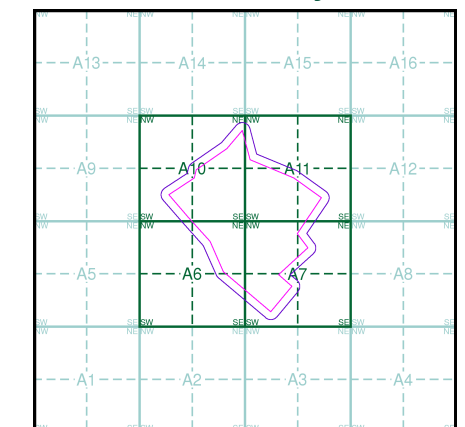
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A

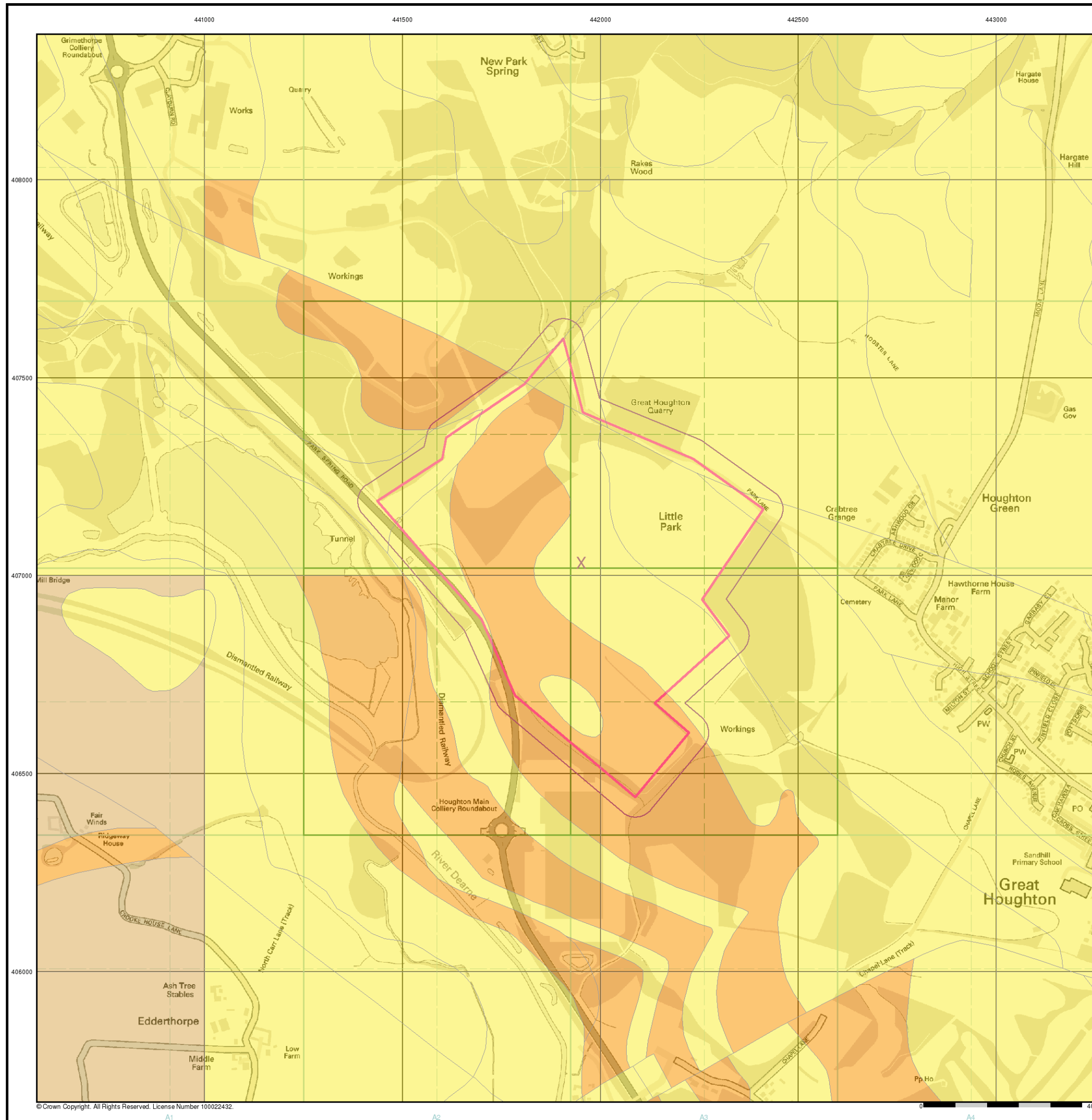


Order Details

Order Details: 43477419_1_1
 Customer Ref: Park Spring
 National Grid Reference: 441950, 407030
 Slice: A
 Site Area (Ha): 54.44
 Search Buffer (m): 50

Site Details

Park Spring



8.2 GEOLOGY, HYDROGEOLOGY, HYDROLOGY - COAL AUTHORITY REPORT

The COAL AUTHORITY

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG

Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

**LANDMARK INFORMATION GROUP
LIMITED
SOWTON INDUSTRIAL ESTATE
ABBEY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY**

Our reference: **51000206868003**
Your reference: **43477419**
Date of your enquiry: **10 January 2013**
Date we received your enquiry: **10 January 2013**
Date of issue: **10 January 2013**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

PARK SPRING, GREAT HOUGHTON, SOUTH YORKSHIRE,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 16 seams of coal at 90m to 900m depth, and last worked in 1992.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

There are 2 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the attached plan.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required in addition to that provided in this report, the Authority need to manually search their records. For further advice on how to order this additional information visit www.groundstability.com or telephone 0845 7626 848.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is in an area for which notices of entitlement to withdraw support were published in 1944, 1964, 1974, 1982.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Comments on Coal Authority information

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

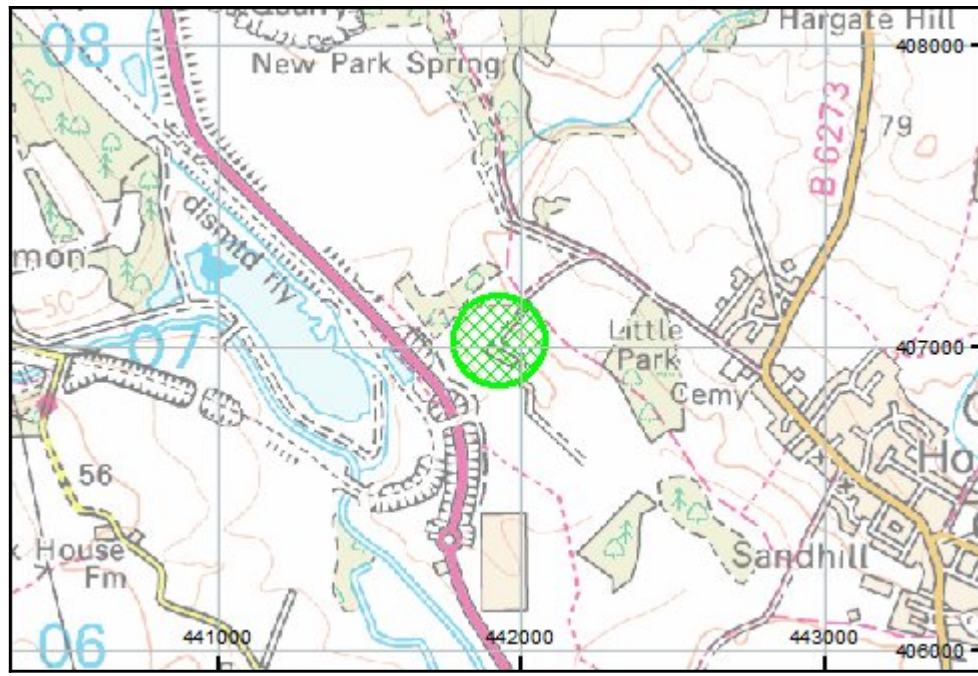
This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006. The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

Map images are being sent under separate cover

Location map



Approximate
position of
property



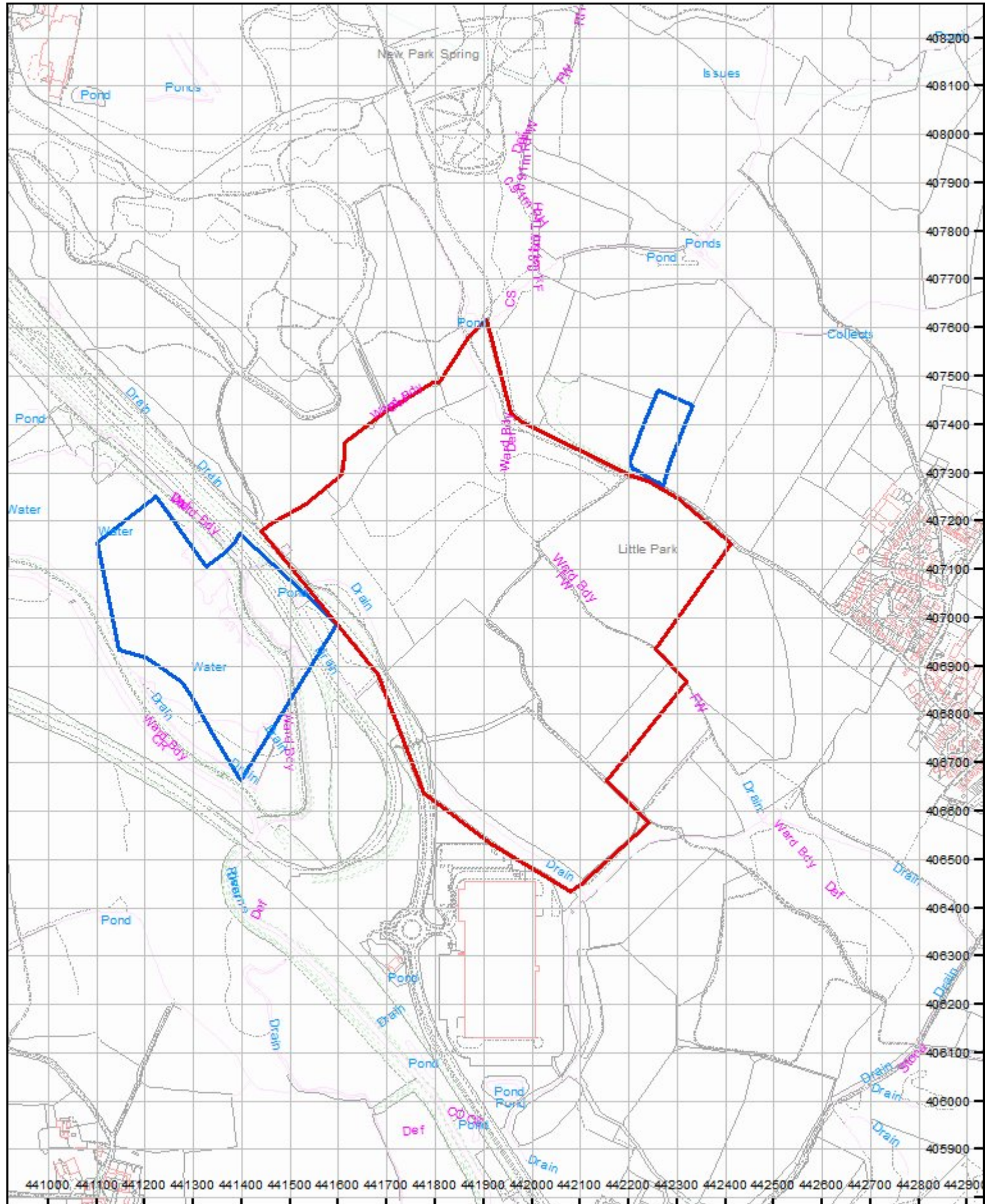
Enquiry boundary

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Key

Approximate position of enquiry boundary shown

Coal Claims



8.3 GEOLOGY, HYDROGEOLOGY, HYDROLOGY - FLOOD RISK ASSESSMENT

FLOOD RISK ASSESSMENT

Park Spring Wind Farm

Final

Flood Risk Assessment

Prepared for

EDF Energy Renewables
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CONTENTS

	Page
Introduction	9
1 Introduction	11
1.1 Project Background	11
1.2 Site Location and Description	11
1.3 Consultation with Relevant Bodies	11
Potential sources of flooding	13
2 Potential sources of flooding	15
2.1 Fluvial Flooding	15
2.2 Tidal flooding	16
2.3 Surface water flooding	16
2.4 Site generated surface water runoff	17
2.5 Overland flow from adjacent sites	17
2.6 Groundwater flooding	17
2.7 Artificial sources	18
2.8 Flood warnings and flood alerts	18
Safety and operational impacts	19
3 Safety and operational impacts	21
The sequential and exception tests	23
4 The sequential and exception tests	25
4.1 The Sequential Test	25
4.2 The Exception Test	25
Mitigation	26
5 Mitigation	27
Conclusions	29
6 Conclusions	31

SECTION 1

INTRODUCTION

1 INTRODUCTION

1.1 Project Background

1.1.1 This Flood Risk Assessment (FRA) has been prepared by Parsons Brinckerhoff Ltd. on behalf of EDF Energy Renewables (EDF ER). It is submitted in support of an application for planning permission for the development of a three turbine wind farm, together with associated ancillary infrastructure, to be located to the east of the Park Spring Road (A6195), Little Houghton, Barnsley.

1.1.2 The proposed wind farm will consist of three wind turbines, access tracks, hardstandings and a small control building. Each of the turbines will be capable of producing approximately 2 MW of electricity that will feed into the electricity grid.

1.1.3 Parsons Brinckerhoff has been commissioned by EDF ER as part of the planning process to prepare a FRA to support a planning application for the development. The findings of these studies are presented in this document which details the assessment that was based on available information and has addressed the requirements of the National Planning Policy Framework (NPPF), supporting Technical Guidance to NPPF and CIRIA C624: Development and Flood Risk Guidance.

1.2 Site Location and Description

1.2.1 The centre of the proposed wind farm site is at National Grid Reference (NGR) SE 442 407. The site is situated to the east of the River Dearne, a Main River which is a tributary to the River Don. The River Dearne, River Don and River Rother (also a tributary to the River Don) manage a total catchment drainage area of 1,849 square kilometres. The proposed site is undulating mixed used agricultural land with small areas of woodland, and includes areas of restored open cast workings.

1.2.2 The site has an undulating topography with a relatively uniform fall from north-east to south-west, ranging from approximately 80m Above Ordnance Datum (AOD) to 30m AOD.

1.2.3 There are field drains located within the site boundary, which, in the main, follow field boundaries.

1.2.4 There is a water body, Edderthorpe Ings, a Local Wildlife Site, 77m to the west of the site boundary.

1.3 Consultation with Relevant Bodies

1.3.1 The Environment Agency (EA) was contacted with regards to the Park Spring Wind Farm as part of the formal Scoping exercise undertaken in 2011. The Scoping response stated that if the development were over 1 ha then a site specific FRA would be required.

1.3.2 In line with NPPF, a site-specific flood risk assessment is required for the Park Spring Wind Farm development as the proposal is greater than 1 ha in size within Flood Zone 1.

SECTION 2

POTENTIAL SOURCES OF FLOODING

2 POTENTIAL SOURCES OF FLOODING

2.1 Fluvial Flooding

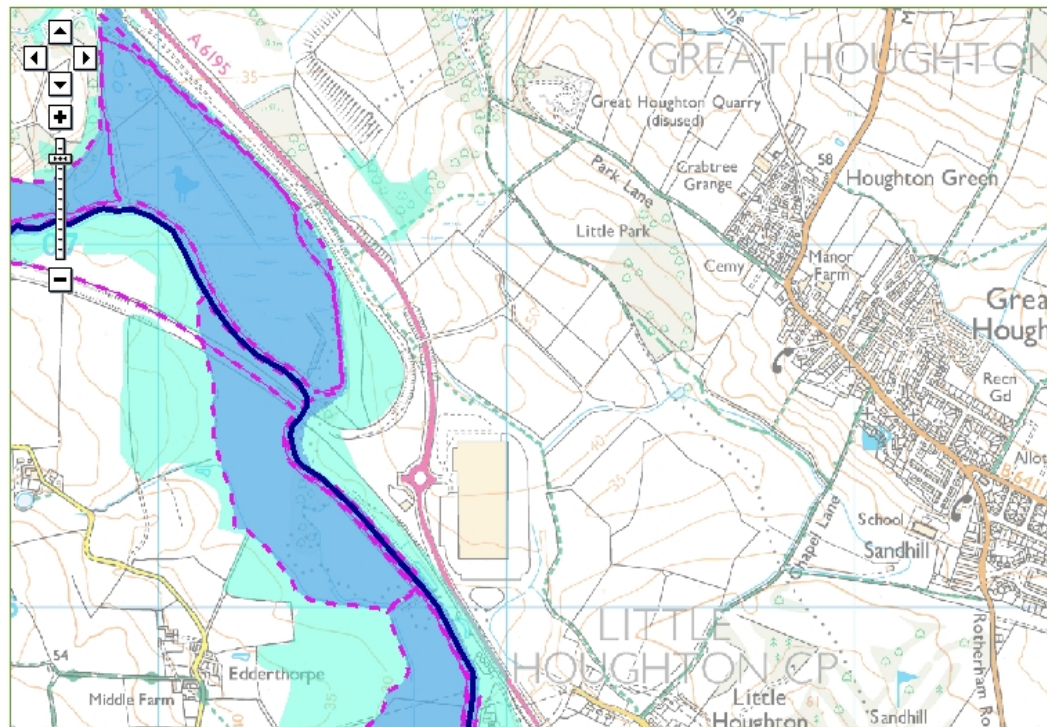
2.1.1 The main potential source of fluvial flooding at the site is from the River Dearne. The river is 380 m west of the site boundary at its closest point. The river is a heavily modified watercourse, 51.9 km in length that flows from west of Denby Dale, through Barnsley and Mexborough where it meets the River Don. The River Dearne management catchment is Don and Rother, and the river basin district is Humber. The catchment is bounded by the Pennines to the west, the Calder to the north and the Trent to the east and south.

2.1.2 The EA provides flood risk maps that show areas at risk of flood on a broad scale, an extract is shown below (Figure 1). The EA maps do not take into account manmade structures such as culverts or flood defences. The maps denote flood risk in three zones:

- Zone 3 – area assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of sea flooding (>0.5%) in any year.
- Zone 2 – area assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year.
- Zone 1 – area assessed as having less than 1 in 1000 annual probability of river or sea flooding (<0.1%) in any year.

2.1.3 The majority of the Park Spring wind farm site is within Flood Zone 1. A small isolated section within the site boundary is within Flood Zone 2 most likely attributed to the smaller field drains that are located within the site boundary. None of the three wind turbines or associated infrastructure are proposed to be erected within the area of greater flood risk.

Figure 1: Flood risk



© Environment Agency copyright and database rights 2013. © Ordnance Survey Crown copyright. All rights reserved. Environment Agency, 100028380. Contains Royal Mail data © Royal Mail copyright and database right 2013.

2.2 Tidal flooding

- 2.2.1 There are no tidal rivers present on site or in the vicinity of the site boundary. The site is above 35 m AOD and it is not within the EA's indicative coastal flood zone. Therefore the risk of tidal flooding at the site is considered negligible.

2.3 Surface water flooding

- 2.3.1 Review of Ordnance Survey maps indicate that the centre of the site may be prone to standing water that could be attributed to standing surface water that does not easily infiltrate to ground. The site is underlain by seams of bedrock geology comprising Pennine Upper Coal Measures, Pennine Middle Coal Measures and Ackworth Rock. Review of EA groundwater vulnerability maps indicate that the majority of the site is located within the Upper Coal Measures and Pennine Middle Coal Measures that are deemed to have low permeability and could therefore contribute to areas of standing water. The land to the east is shown to be underlain by Ackworth Rock that is deemed to have a high permeability.
- 2.3.2 There are a number of field drains that are located within the site boundary that convey overland flow to the River Dearne and its tributaries during heavy rainfall events. Exceedence of these drains could be caused by localised blockage, in particular from culvert blockages, or during extreme rainfall events. However, flood risks associated within these small field drains is not considered significant.
- 2.3.3 There are no plans to culvert any lengths of watercourses or drains as part of the proposed development beyond those already culverted beneath existing access

roads/tracks. As such, this development is unlikely to increase the risk of culvert blockage in the future.

2.4 Site generated surface water runoff

2.4.1 The proposed development will increase the area of hardstanding on the site. Each of the three turbines will have concrete foundation measuring approximately 16 x 16 m with a footprint area approximately 256 m². Approximately 0.9 km of new access tracks are proposed at the site. The turbine foundations and access tracks, together with the crane hardstandings, control building will result in an increase in hardstanding at the site of a total of 0.98 ha in a development area of approximately 90.4 ha (1.08%).

2.4.2 This increase in hardstanding will result in a localised increase in surface water runoff, although this is not considered to pose a significant increase in flood risk within the catchment considering the relatively small percentage of new impermeable area in comparison to the wider site area that will remain Greenfield.

2.4.3 Access tracks have been designed to follow the existing on-site tracks where possible it minimise the additional land-take required for the development.

2.5 Overland flow from adjacent sites

2.5.1 The proposed development site is bordered by agricultural land to the north, east and south, and by the A6195 to the west. Overland flow from higher topography to the east of the site may result in surface water runoff flowing through the site during extreme storm events. However, the area of agricultural land located at a higher elevation from which overland would originate is of a relatively small size and is unlikely to pose significant flood risk.

2.6 Groundwater flooding

2.6.1 Groundwater flooding is caused by the emergence of water originating from underground, usually governed by site geology. This tends to occur after long periods of sustained high rainfall, and the areas at most risk are often low-lying where the water table is more likely to be at shallow depth.

2.6.2 The site is underlain by seams of bedrock geology comprising Pennine Upper Coal Measures, Pennine Middle Coal Measures and Ackworth Rock. The bedrock geology is classed as a Secondary A aquifer. These aquifers are considered to be permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

2.6.3 There is no local information available which provides evidence on groundwater flood risk within the area and groundwater rebound is not believed to be an issue within the borough of Barnsley. However, review of Ordnance Survey maps do indicate that the centre of the site may be prone to standing water that could be attributed to raised ground water levels and/or areas of standing surface water that do not easily infiltrate to ground. It is considered more likely that these areas are caused by surface water that does not infiltrate easily to ground.

2.6.4 A review of the EA Ground Water Source Protection Zone (GWSPZ) map for the development location shows that the site is located outside of any designated GWSPZ. GWSPZ's are areas that are considered important groundwater resources

used for public water supplies and that are often abstracted from wells, boreholes and springs

2.7 Artificial sources

- 2.7.1 Flood risk associated with artificial sources includes flooding from canals, reservoirs and lakes. Review of EA indicative flood maps indicates that there are no canals, reservoirs or lakes that pose flood risk to the proposed development site.

2.8 Flood warnings and flood alerts

- 2.8.1 The statutory responsibility for issuing flood warnings now lies with the EA, although actions should also be taken by the police and Barnsley Metropolitan Borough Council staff on the receipt of flood warnings and during a flood event. Warnings are issued using television, local radio broadcasts and loudspeaker vans and, in addition, the EA operate an automatic flood warning system by which warning messages are telephoned to properties considered to be at significant risk of flooding.
- 2.8.2 The proposed development site is not located within an area that would receive flood warnings or flood alerts.

SECTION 3

SAFETY AND OPERATIONAL IMPACTS

3 SAFETY AND OPERATIONAL IMPACTS

- 3.1.1 The application site is considered to be at low risk of fluvial flooding, and at low risk of flooding from other sources. The greatest flood risks are likely to be associated with surface water runoff that does not infiltrate to ground.
- 3.1.2 There is no residential development planned for the site, and the site will not be permanently manned. The turbines will be operated remotely and the site will only be visited for routine maintenance or when there was a mechanical problem with the turbines.
- 3.1.3 Identified flood risks at the site are not considered to pose any risk to the safe operation or maintenance of the turbines.

SECTION 4

THE SEQUENTIAL AND EXCEPTION TESTS

4 THE SEQUENTIAL AND EXCEPTION TESTS

4.1 The Sequential Test

4.1.1 The NPPF and Technical Guidance recommend that the risk based Sequential Test should be applied to all new development. Its aim is to steer new development to areas at the lowest risk of flooding (Flood Zone 1). Where this is not possible, higher risk flood zones can be considered, but in the context of Flood Risk Vulnerability Classification and the possible application of the Exception Test.

4.1.2 Review of existing flood risks indicates that the majority of the Park Spring wind farm site is within Flood Zone 1. A small isolated section within the site boundary is within Flood Zone 2 most likely attributed to the smaller field drains that are located within the site boundary. None of the three wind turbines or associated infrastructure (including access roads) are proposed to be erected within the area of greater flood risk.

4.1.3 With reference to Table 2 in the Technical Guidance, the proposed works would be classed as 'Essential Infrastructure'. Table 3 indicates that Essential Infrastructure is appropriate within Flood Zone 1 and Flood Zone 2. The proposed development therefore passes the requirements of the Sequential Test.

4.2 The Exception Test

4.2.1 The proposed development meets the requirements of the NPPF and, specifically, the requirements of the Sequential Test. The Exception Test is therefore not required.

SECTION 5

MITIGATION

5 MITIGATION

- 5.1.1 The development is located within Flood Zone 1 and therefore no mitigation measures to protect the development from fluvial flooding are proposed.
- 5.1.2 The FRA has identified a low risk of flooding associated with surface water runoff that may result in some standing water within the site. To manage these risks, it is recommended that the control building floor level and the areas of hardstanding areas, including access tracks, are set at a minimum of 150 mm above the surrounding ground level to reduce the risk from surface water flooding.
- 5.1.3 The construction of the proposed wind farm would be subject to a Construction Environmental Management Plan (CEMP), to be prepared in discussion with the EA. The CEMP will include, amongst other management plans, a Drainage Management Plan (DMP) which will detail proposed surface water drainage measures to be implemented to control surface water runoff. A sustainable drainage system (SUDS) or alleviation scheme for the site will be agreed and implemented.

SECTION 6

CONCLUSIONS

6 CONCLUSIONS

- 6.1.1 The proposed development comprises electricity generation infrastructure; fuelled by a renewable and clean resource. Sustainable electricity generation is much needed as a result of climate change brought about largely by human activities including the burning of fossil fuels. The FRA has considered the various types of flooding that could result at this site. The conclusions are as follows:
- The main fluvial flood risk to the site is from the River Dearne, which is 380m to the west of the site boundary. The river has a heavily modified channel, well below the elevation of the proposed turbine locations.
 - A low risk of flooding associated with surface water runoff has been identified and may result in some standing water within the site. To manage these risks, it is recommended that the control building floor level and the areas of hardstanding areas, including access tracks, are set at a minimum of 150 mm above the surrounding ground level.
 - Even if the turbine bases become inundated, this will not affect their operation during a flood event.
 - The risk of overland flooding from neighbouring sites is considered negligible.
- 6.1.2 The increase in hardstanding at the site of 0.98 ha is not considered to significantly alter the greenfield runoff rate at the site. The existing ditches on site will be retained and the site will be drained as is currently the case.

9.1 ECOLOGY - PHASE 1 HABITAT SURVEY

Extended Phase 1 Habitat Survey; Park Spring Wind Farm, Barnsley

EDF Energy Renewables

May 2011

Extended Phase 1 Habitat Survey; Park Spring Wind Farm, Barnsley

Prepared for

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CONTENTS

	Page
EXECUTIVE SUMMARY	1
INTRODUCTION	1
1.1 Overview	3
1.2 Site Context	3
1.3 Legislation and Planning Context	3
METHODOLOGY	4
2.1 Desk Study	5
2.2 Field Survey	5
2.3 Nature Conservation Evaluation Methodology	6
2.4 Survey limitations	7
RESULTS	9
3.1 Desk-Study	11
3.2 Field surveys	13
DISCUSSION AND RECOMMENDATIONS	23
4.1 Discussion and specific recommendations	25
4.2 Recommendations Summary	28
CONCLUSIONS	31
APPENDICES	35

EXECUTIVE SUMMARY

Parsons Brinckerhoff has been commissioned by EDF Energy Renewables (EDF ER) to undertake an extended Phase 1 Habitat Assessment to support and inform a planning application for three wind turbines at the proposed site situated at Park Spring, Barnsley.

The purpose of the assessment was to document the baseline ecological conditions by recording and mapping broad habitat types, investigating and identifying any designated sites and the potential for protected and/or species of conservation interest that would require further survey on the basis they might comprise an ecological constraint to the proposed development.

The site is located on land to the east of Park Spring Road, Barnsley; OS Grid reference SE422066. The site is situated between Park Spring Road and Great Houghton village.

A desk study was undertaken to collect records of protected and notable species and habitats in the local area. The desk based study also included a search for statutory and non-statutory designated sites surrounding the site. An extended Phase 1 Habitat survey (site visit) was undertaken by suitably experienced Parsons Brinckerhoff ecologists on 20th April 2011, following standard methodology.

Statutory sites found within the search radius include two Sites of Special Scientific Interest (hereafter referred to as SSSI). These sites are designated for geological value rather than nature conservation value and are therefore not considered further within this assessment.

Non-statutory sites found within 2 km were two Local Wildlife Sites (hereafter referred to as LWS); Edderthorpe Ings and West Haigh Wood. Habitats on site at Edderthorpe Ings include areas of open water, marshy inundation grassland and shoreline habitats. The site supports a variety of breeding, passage and wintering bird species with a high district conservation value. West Haigh wood is ancient woodland containing mixed deciduous woodland dominated with oak (*Quercus robur*) with bird interest.

The majority of the site is arable land with improved grassland grazed by horses. There are areas of young broad leaved plantation woodland present on site. The site is intersected with ditches and hedgerows and hedges with trees, with some trees being mature. Several wet and dry ditches occur on site and there were five ponds recorded during the survey.

The majority of habitats on site are not included as protected habitats within the Barnsley Biodiversity Action Plan. However, the ponds are included as a broad habitat under the plan and the area of species rich hedgerow is considered as a priority habitat. Therefore these areas of habitat within the site although limited are considered to be of 'local conservation value'.

The site has the potential to support a variety of protected species such as: water voles, otters, bats, birds, reptiles and great crested newts. Detailed surveys/due consideration are recommended for the following species or species groups in order to fully inform the impact assessment of the proposed development:

- I. Badger survey;
- II. Combined water vole and otter survey;
- III. Amphibian survey (great crested newts);
- IV. Reptile (precautionary mitigation works); and
- V. Bat survey.

SECTION 1

INTRODUCTION

1 INTRODUCTION

1.1 Overview

1.1.1 Parsons Brinckerhoff Ltd were commissioned by EDF ER to carry out an extended Phase 1 Habitat Assessment in order to support and inform the proposed development of a wind farm consisting of three wind turbines at Park Spring, Barnsley.

1.1.2 The purpose of the assessment was to document the baseline ecological conditions by recording and mapping broad habitat types, identifying the presence of any designated sites and the potential for protected and/or species of conservation interest that would require further survey on the basis they might comprise an ecological constraint to the proposed development.

1.2 Site Context

1.2.1 The site is located on land to the east of Park Spring Road, Barnsley (OS Grid reference for the centre of the site is SE422066). The site consists of a combination of arable land and woodland.

1.2.2 The site is surrounded by woodland and arable land to the north of the site; further north there is an industrial area. To the east of the site habitats include woodland belts and arable land. Disused Great Houghton Quarry, which is surrounded by woodland, is situated to the east. To the south of the site arable land occurs with a golf course and further south lies the village of Little Houghton. To the west of the site is Park Spring Road. On the western boundary of the site there is a warehouse and associated hardstanding. The River Dearne and Edderthorpe Ings LWS were located on the far side of Park Spring Road.

1.3 Legislation and Planning Context

1.3.1 Articles of wildlife and countryside legislation, planning policy guidance and references to both local and national biodiversity action plans and regional/local strategies and plans are referred to in this report. The articles are described in more detail in Appendix A and the relevant sections of the report.

1.3.2 The key articles of relevance are:

- i The Conservation of Habitats and Species Regulations 2010 (Habitats Regulations)
- ii The Wildlife and Countryside Act 1981(as amended) (WCA)
- iii The Countryside and Rights of Way Act 2000 (CRoW)
- iv The Natural Environment and Rural Communities Act 2006 (NERC)
- v The Protection of Badgers Act 1992
- vi Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9)
- vii The UK Biodiversity Action Plan (UKBAP)
- viii Barnsley Biodiversity Action Plan (LBAP)
- ix Barnsley Unitary Development Plan (UDP) (2000)

SECTION 2

METHODOLOGY

2 METHODOLOGY

2.1 Desk Study

2.1.1 Parsons Brinckerhoff was commissioned to carry out a desk study in support of the Phase 1 Habitat Assessment. This enabled collection of any protected and notable species records from within a set search area. There is no local record centre for the County and therefore no advanced data search could be commissioned by Parsons Brinckerhoff. Barnsley Metropolitan Borough Council Biodiversity Officer¹ was contacted to obtain details of any county records.

2.1.2 The desk based study included a search for the following statutory and non-statutory designated sites presented below. The “search area” for statutory sites and non-statutory sites were 5km and 2km respectively.

- i Special Areas of Conservation (SAC);
- ii Special Protection Areas (SPA);
- iii Ramsar sites;
- iv Site of Special Scientific Interest (SSSI);
- v National Nature Reserve (NNR);
- vi Local Nature Reserve (LNR);
- vii Sites of Nature Conservation Importance (SNCI); and
- viii Yorkshire Wildlife Trust Reserves.

2.1.3 The following web-based data-bases were consulted:

- i Multi Agency Geographic Information for the Countryside (MAGIC) – accessed 04/05/11.
- ii National Biodiversity Network (NBN) Gateway – accessed 04/05/11.

2.1.4 In addition to the above, the Barnsley Biodiversity Action Plan (the Barnsley Biodiversity Trust²) was reviewed for habitats and species considered to be local conservation priorities within the local area.

2.2 Field Survey

2.2.1 An extended Phase 1 Habitat survey was undertaken by suitably experienced Parsons Brinckerhoff ecologists on the 20th April 2011 to assess the ecological value of the site and record any protected habitats, or evidence/potential of any notable or protected species on site, or within the relevant surrounding area.

2.2.2 The survey followed standard methodology published by the Joint Nature Conservation Committee (JNCC)³ but extended for use in Environmental Assessment (IEEM 2006⁴) with habitat types present recorded on a Phase 1 habitat map.

¹ Personal Communication with Trevor Mayne, May 2011

² Personal Communication with Malcom Parker May 2011

³ Joint Nature Conservation Committee (2007) Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit, Joint Nature Conservation Committee, Peterborough

⁴ Institute of Ecology and Environmental Management (IEEM) Guidelines for Ecological Impact Assessment 2006

Dominant plant species observed within each habitat type were recorded in accordance with plant species nomenclature in Stace (2010)⁵.

- 2.2.3 The spatial area that was the subject of the survey encompassed all areas within the site boundary. This is referred to as 'the site' for purposes of this Phase 1 report.

2.3 Nature Conservation Evaluation Methodology

- 2.3.1 The ecological features of the site have been evaluated in accordance with guidelines provided within the Institute of Ecology and Environmental Management (IEEM) 'Guidelines for Ecological Impact Assessment' (EcIA)⁶.

- 2.3.2 The guidance provides a framework for the evaluation of features which takes into account the direct biodiversity value of habitats and species, the indirect value of features which help support the ecological integrity of key features, legal protection for both sites and species and evaluation against national and local planning guidance and objectives.

- 2.3.3 It uses a geographic frame of reference for assigning value to features of ecological importance that consists of the following categories given in the left hand column of Table 2.1 below. Examples of the types of features that are typically assigned to each geographic scale are given in the right hand column.

Table 2.1: The geographical scale at which features are assessed for nature conservation value

Geographical Scale at which Feature is Important	Example of Feature
International	Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites.
National	Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs).
Regional	County designated wildlife sites supporting a regionally significant area of a UK priority habitat; or large population of species in the UKBAP or of national nature conservation concern protected species level.
County	Non-statutory sites designated at county level. Ancient woodlands, large areas of priority BAP habitat offering a significant wildlife resource at county level. Large populations of a legally protected species or species included in the UK or Local BAP or other species considered to be threatened at a national level.
District	Non-statutory sites designated at district level, Local Nature Reserves (LNRs). Moderately sized examples of priority BAP habitats.
Local	Old hedges, woodlands, ponds, significant areas of species rich grassland or other habitat, small scale examples of priority BAP habitat or areas supporting small populations of protected species, species included in the UK or Local BAP

⁵ Stace, C. (2010) New Flora of the British Isles; Third Edition. Cambridge University Press, Cambridge.

⁶ Institute of Ecology and Environmental Management (IEEM) Guidelines for Ecological Impact Assessment 2006.

Geographical Scale at which Feature is Important	Example of Feature
	or other species considered to be threatened at a national level.
Of value within the context of the Site or zone of influence of the scheme/project	Woodland plantations, structure planting, small areas of species rich grassland or other species rich habitat that is not included in the UK or Local BAP.
Negligible	Areas of built development, active mineral extraction or intensive agricultural land with low interest for nature conservation and little/no ability to support UK or Local BAP species or species considered threatened nationally.

2.3.4 It should be noted that whilst the evaluation considers the presence of protected species that receive legal protection at various levels (national, international) and non-statutory protection at a local level (through development plans), the simple presence of the species does not necessarily infer value at the level of protection it receives. Therefore, the value of a site for protected species is dealt with on a species by species basis, taking into account the recorded level of activity, the level of protection it receives and the overall value of habitat on that site for that species.

2.4 Survey limitations

2.4.1 The site was visited over the period of a single day, as such seasonal variations can not be observed and potentially only a selection of all species that potentially occur within the site will have been noted. However, the survey was carried out within the survey season considered to be optimum for Phase 1 Habitat Assessments (March - October⁷).

2.4.2 The disused Great Houghton Quarry to the north east of the site proved somewhat difficult to access. Surveyors could assess the majority of the quarry and we able to map the habitats and rule out any additional ponds in this location. However, not all areas were accessed due to dense vegetation and steep slopes. It is considered unlikely that any habitats of note were not identified during the survey works.

2.4.3 It is considered that the survey provides a general assessment of potential nature conservation value of the site, and the combination of the desk study and the site visit provides an accurate representation of the various species and habitat types present at the site.

⁷ Joint Nature Conservation Committee (2007) Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit, Joint Nature Conservation Committee, Peterborough

SECTION 3

RESULTS

3 RESULTS

3.1 Desk-Study

Designated sites

3.1.2 There are no SPAs, SACs or Ramsar sites located within 15 km of the centre of the site and no SACs designated wholly or in part for their bat interest within 20 km of the centre of the site.

3.1.3 Two statutory designated sites were found within 5 km of the centre of the site, with the closest located 625 m to the north. Table 3.1 below presents the sites together with a summary of their reason for designation and their respective distances from the development site. The locations of these sites are illustrated in Figure 1.

3.1.4 These sites are designated for their geological interest rather than nature conservation value and therefore are not considered further in this assessment.

Table 3.1 Statutory designated sites found within km radius from the centre of the site

Site	Designation	Summary of Designation Features	~ Distance from survey area (m)
Carlton Main Brickworks	SSSI ⁸	Carlton Main Brickworks lies just to the south of Grimethorpe, six kilometres east of Barnsley. The special interests are within the Coal Measures strata. They include one of the best available exposures of the Top Marine Band.	~ 625m north
Stairfoot Brickworks	SSSI	Stairfoot brickworks lies about 3 kilometers east-south-east of Barnsley. The site contains exposures of the Aegiranum Marine Band which marks the Duckmantian-Bolsovia stage boundary of the Westphalian Series. The site provides the best available exposure of the Aegiranum Marine Band within the Pennine basin as well as the best available exposure of the ammonoid bearing part of the marine band in the world.	~ 4000m south west

3.1.5 Non-statutory sites found within 2 km of the site include two Local Wildlife Sites (hereafter referred to as LWS). The locations of these sites are illustrated in Figure 2.

Table 3.2 Non-statutory designated sites found within 2km radius from the centre of the site

Site	Designation	Summary of Designation Features	~ Distance from survey area (m)
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⁸ Site of Special Scientific Interest (SSSI) are notified under Section 28 of the Wildlife and Countryside Act 1981 as amended. SSSI are examples of the country's very best wildlife and geological sites

Edderthorpe Ings	Local Wildlife Site	Edderthorpe Ings is a site containing open water habitats, inundation grassland, wet woodland and shoreline habitats. The site supports a diversity of bird species. Species of note are those associated with wet lowland grasslands including redshank, snipe and lapwing.	~ 77m west
West Haigh Wood	Local Nature Reserve / Local Wildlife Site	West Haigh wood is ancient woodland (in existence since 1600). Habitats on site include mixed deciduous woodland dominated with oak (<i>Quercus robur</i>). Archaeological features within the woodland include abandoned Victorian ponds.	~ 657m north east

Protected and/or species of Conservation Importance

Badger

- 3.1.6 The desk-based study returned several records of Eurasian badger (*Meles meles*) within the search radius. However, all records were historic with no records falling within the last ten years.

Otter

- 3.1.7 There are 35 records of otter (*Lutra lutra*) within 10 km of the site from the last ten years. Records returned were at a 10 km resolution so it was not possible to determine if any records were from either within or adjacent to the site boundary. This species is a Priority species on Barnsley Biodiversity Action Plan.

Water vole

- 3.1.8 There were many records of Eurasian water vole (*Arvicola amphibius*) within 10 km of the site. The nearest record was 1.5km to the south east of the site.

Dormice

- 3.1.9 The desk-based study returned no records of hazel dormice (*Muscardinus avellanarius*) within 10 km of the site.

Bats

- 3.1.10 There are several records of bats within 10 km of the site. These include records for both common (e.g. common pipistrelle (*Pipistrellus pipistrellus*)) and rarer species (Leisler's (*Nyctalus leisleri*), and Natterer's (*Myotis nattereri*)). Data from the NBN does not provide details on whether records are incidental sightings or are records of bat roost sites.
- 3.1.11 One historic record of a Daubenton's bat (*Myotis daubentonii*) was recorded 1.5 km to the south west of the site. However, no records were evident from within the last ten years.
- 3.1.12 No SACs designated for bat species are present within 20 km of the site.

Birds

- 3.1.13 There are several records within the last ten years returned for bird species within the site and its search radius.
- 3.1.14 Species recorded which are listed under Section 41 of the NERC Act (2006) include lapwing (*Vanellus vanellus*) and Eurasian curlew (*Numenius arquata*). The nearest records of these species were 1 km south of the site.

Amphibians

- 3.1.15 Several records were recorded of amphibians within the 10 km search radius of the site over the last ten years. Records include common toad (*Bufo bufo*) and common frog (*Rana temporaria*). The nearest records for both species occur 1.5 km to the south west of the site.

Great-crested newts

- 3.1.16 There were 30 records of great crested newt (*Triturus cristatus*) within 10 km of the site with the nearest record 1 km to the west of the site (however, this area of record is separated from the site by the River Dearne and the A6195). This species is a Priority species on the Barnsley Biodiversity Action Plan.

Reptiles

- 3.1.17 The desk-based study returned records of one reptile species within 2 km of the site within the last ten years. These were records of grass snake (*Natrix natrix*) with the nearest record occurring 1.5 km to the south west of the site.

Invertebrates

- 3.1.18 Several species of butterfly listed on the UK BAP were recorded within the site boundary. These include dingy skipper (*Erynnis tages*), small heath (*Coenonympha pamphilus*) wall, (*Lasiommata megera*) and white-letter hairstreak (*Lasiommata megera*).

Flora

- 3.1.19 There are no recent records of rare or notable flora species within 2 km of the site. However, some records were returned for the wider search radius. Including records for species listed on the IUCN Red List as vulnerable species.

3.2 Field surveys

General habitat types

- 3.2.2 The site supported a number of habitat types as defined by the JNCC standard methodology for Phase 1 Habitat Survey. The code used for categorisation is included in brackets after the habitat type to allow the reader to cross reference. The nature conservation evaluation is included separately for each habitat type found on site.
- 3.2.3 The Phase 1 Habitat Plan for this site has been split into four maps for ease of reference. Refer to Figures 3, 4, 5 and 6 for the Phase 1 maps for the site.

- 3.2.4 The survey area consists mainly of numerous arable fields and pasture separated by hedges and wet and dry ditches. Areas of broadleaved semi-natural woodland occur to the south and east and areas of broadleaved plantation woodland occur to the south and north of the site. There are access tracks through the centre of the site and several footpaths that border the arable fields. Within the site dry and wet ditches are present, these occur throughout the site and are interlinked. Several ponds occur within the site boundary. The site is intersected by several hedges. These are generally species poor and defunct however two hedgerow systems running through the centre of the site are assessed to be continuous species rich hedgerows.
- 3.2.5 Figure 3 refers to the southern area of the site.
- 3.2.6 The southern area of the site consists mainly of broadleaved plantation woodland surrounding arable land and improved grassland, grazed by horses. There are dry ditches bordering the south of the site and species poor defunct hedgerows occur here. A wet ditch occurs to the north east of the south section of the site and two ponds occur here. To the south of Chapel Lane there is Sandhill Golf Club and to the north of this area lies Great Houghton.
- 3.2.7 Figures 4 and 5 refer to the central sections of the site.
- 3.2.8 The central area of the site consists mainly of arable land with hedgerows. To the east of the central area a large area of broadleaved semi-natural woodland occurs. To the south of this woodland there is a pond and associated wet ditches. The edges of central area of the site are bordered with wet ditches and a dry ditch runs through the site. To the west of the central area an area of bare ground occurs adjacent to a factory adjoining Park Spring Road providing an area of hard standing next to the site. Across Park Spring Road the River Dearne runs parallel to the site.
- 3.2.9 Figure 6 refers to the northern section of the site.
- 3.2.10 The northern area of the site consists mainly of improved grassland surrounded by broadleaved plantation woodland and hedgerows. Some areas of semi-improved grassland occur on the north of the site. Areas of broadleaved scattered trees occur to the north of the site. Just outside of the site boundary to the east Great Houghton Quarry occurs. This is a disused quarry and has reverted to broadleaved semi natural woodland. An area of bare ground occurs to the far north east of the site behind which a large pond occurs. To the west of the site occurs an area of semi-improved grassland, a drain and a balancing pond for Park Spring Road.
- 3.2.11 Habitats found outside the proposed development boundary have not been evaluated as these will not be directly affected by the proposed development and as such are not considered to require further consideration. However, broad habitat types in areas adjacent to the site boundary were identified.

Broadleaved semi-natural woodland (A.1.1.1)

- 3.2.12 This habitat type as defined by the JNCC standard methodology for Phase 1 Habitat Survey was identified in several areas throughout the site. A.1.1.1 was identified at the south of the site, along Chapel Lane, adjacent to both sides of the main track through the site, to the east of the central area of the site and to the north and east of the north section of the site. For further clarification of the areas of A.1.1.1 refer to Figure 3. Species found throughout the A.1.1.1 are dominated by Beech (*Fagus sylvatica*) sycamore (*Acer pseudoplatanus*), Norway maple (*Acer platanoides*) and sessile oak (*Quercus petraea*). Other prominent species within this habitat type

include elder (*Sambucus nigra*), horse chestnut (*Aesculus hippocastanum*), hawthorn (*Crataegus monogyna*), silver birch (*Betula pendula*), holly (*Ilex aquifolia*), blackthorn (*Prunus spinosa*). The understorey species were dominated by bluebell (*Hyacinthoides non-scripta*), greater stitchwort (*Stellaria holostea*), wood avens (*Geum urbanum*), garlic mustard (*Alliaria petiolata*) and dog's mercury (*Mercurialis perensis*).

Broadleaved plantation woodland (A.1.1.2)

- 3.2.13 Broadleaved plantation woodland occurs throughout the middle of the south section of the site, to the west side of the central section of the site and in the middle and to the north of the northern section of the site. For further clarification of the areas of A.1.1.2 refer to Figure 3. A.1.1.2 habitats present on site were dominated by alder (*Alnus glutinosa*). Other species present include downy birch (*Betula pubescens*) rowan (*Sorbus aucuparia*), pinus spp. whitebeam (*Sorbus aria*) and hawthorn.

Scattered broad leaved trees (A.3.1)

- 3.2.14 Scattered broad leaved trees occurred along Chapel Lane to the south of the site and along the north of the northern section of the site. For further clarification of the areas of A.3.1 refer to Figure 3. A.3.1 was dominated by alder, hawthorn, goat willow (*Salix caprea*) and downy birch. Other species present in this habitat type include blackthorn, rowan, cherry (*Prunus avium*), dog rose (*Rosa canina*), lilac (*Syringa vulgaris*), broom (*Cytisus scoparius*), gorse (*Ulex europaeus*) and sessile oak.

Semi-improved neutral grassland (B.2.2)

- 3.2.15 Semi-improved neutral grassland occurs in the northern section of the site only. This habitat type occurs along the northern boundary of the site from Park Spring Road in the east to the quarry on the west side of the site. These habitats are dominated by Yorkshire fog (*Holcus lanatus*), sheep's fescue (*Festuca ovina*) with false oat-grass (*Arrhenatherum elatius*), and tufted hair-grass (*Deschampsia caespitosa*). The herbaceous layers found within this habitat type are dominated by ribwort plantain (*Plantago lanceolata*) with curled dock (*Rumex crispus*), coltsfoot (*Tussilago farfara*), ragwort (*Senecio jacobaea*), hogweed (*Heracleum sphondylium*), creeping buttercup (*Ranunculus repens*), bird's-foot trefoil (*Lotus corniculatus*), wood vetch (*Vicia sylvatica*), hairy tare (*Vicia hirsuta*), creeping cinquefoil, yarrow (*Achillea millefolium*), and meadow vetchling (*Lathyrus pratensis*).

Improved Grassland (B.4)

- 3.2.16 Improved grassland occurs throughout the site concentrated to the north of the site and to the south of the site near to Chapel Lane (Figure 3). Improved grassland habitats on site are dominated by Cocksfoot (*Dactylis glomerata*) and Yorkshire fog with Sheep's Fescue, wavy hair-grass (*Deschampsia flexuosa*) meadow foxtail (*Alopecurus pratensis*) and creeping soft-grass (*Holcus mollis*). The herbaceous layers for these habitats were dominated by dandelion spp. and white clover (*Trifolium repens*). Other species present in this habitat include creeping buttercup, ribwort plantain, spear thistle (*Cirsium vulgare*), creeping thistle (*Cirsium arvense*), creeping cinquefoil, groundsel (*Senecio vulgaris*), curled dock, broad-leaved dock (*Rumex obtusifolius*) woolly thistle (*Cirsium eriophorum*), meadow vetchling, lupin (*Lupinus polyphyllus*), coltsfoot and lesser trefoil (*Trifolium dubium*). The diversity of all areas of improved grassland is low with changes in species composition between grasslands.

Tall Ruderal (C.3.1)

- 3.2.17 This habitat was found surrounding the dry ditch bordering Chapel Lane to the south of the site (Figure 3 TN 1). Tall ruderal habitats on site are dominated by rosebay willowherb (*Chamerion angustifolium*) spear thistle, creeping thistle, bramble (*Rubus fruticosus*) and common nettle (*Urtica dioica*).

Mesotrophic standing water (G.1.2)

- 3.2.18 There were five ponds found within the site boundary. Two ponds (Figure 3 TN 3 & TN 4) occur to the north of the central section of the site dominated by bulrush (*Typha latifolia*) and common reed (*Phragmites australis*) with creeping bent (*Agrostis capillaries*) and Juncus spp. Pond 1 (TN 3) was identified as being regularly disturbed by dogs whereas Pond 2 (TN 4) was a shaded pond with crack willow (*Salix fragilis*) and goat willow around the edge. There was some algae growth present on Pond 2 which was considered less disturbed. A small ephemeral pond occurs adjacent to a hedgerow along a track through the site without any emergent vegetation and dominated by creeping bent (Figure 5). A balancing pond occurs to adjacent to Park Spring Road dominated by common reed bordered by downy birch and gorse with limited aquatic vegetation (Figure 6). Pond 4 occurs to the north of the site (Figure 3 TN 16). Pond 4 is dominated by bulrush with some areas of open water and well shaded from nearby broadleaved semi-natural woodland.
- 3.2.19 In addition a series of wet ditches (G.1.2) occur to the north of the central section of the site (TN 5) and a small area of this habitat was recorded to the north east of the site. These wet ditches are dominated by bulrush and rosebay willowherb, additional species present include branched burr reed (*Sparganium erectum*), compact rush (*Juncus conglomeratus*), other species of rush (*Juncus* spp.), coltsfoot and watercress (*Rorippa nasturtium-aquaticum*).

Arable land (J. 1.1)

- 3.2.20 This was the most widespread habitat on site but it did not contain any wild plant species.

Species rich intact hedge (J.2.1.1)

- 3.2.21 This hedge was identified bordering the access track through the central section of the site. Woody species are dominated by hawthorn and blackthorn with hazel (*Corylus avellana*), field maple (*Acer campestre*), holly, Oregon-grape (*Mahonia aquifolium*), ash (*Fraxinus excelsior*). Undergrowth for this habitat consists of improved grassland as listed above with hogweed (*Heracleum sphondylium*) and cow parsley (*Anthriscus sylvestris*).

Species poor intact hedge (J.2.1.2)

- 3.2.22 This hedge type is found spread throughout the survey area with a mixture of the woody species mentioned above but always less than five species present within each hedgerow. Dominant species present are hawthorn, blackthorn, elder and field maple.

Species poor defunct hedge (J.2.2.2)

- 3.2.23 This hedge type is found spread throughout the survey area with the same species composition as described in section J.2.1.2

Species rich hedge with trees (J.2.3.1).

- 3.2.24 This habitat is found adjacent to the track through the central section of the site, to the northern section of the site (please refer to Figure 6). Species found within this habitat type are dominated by hawthorn, blackthorn, field maple and Norway maple (*Acer platanoides*) with hazel, elder, silver birch, sycamore, guelder rose (*Viburnum opulus*) and dog rose. The understorey species are dominated by improved grassland species as listed above with dog's mercury, nettle, bramble, rosebay willowherb, mugwort (*Artemisia vulgaris*) and greater stitchwort.

Species poor hedge with trees (J2.3.2)

- 3.2.25 This hedge type is found spread throughout the survey area with the same species composition as described in section J.2.1.2. For locations of this habitat type on site please refer to Figures 3, 4, 5 and 6.

Dry ditch (J.2.6)

- 3.2.26 This habitat was found throughout the survey area in the majority of the site boundary. The majority of this habitat was covered with improved grassland often dominated with creeping bent, sheep's fescue and *Agrostis* spp.

Bare ground J.4

- 3.2.27 An area of bare ground occurs on site to the south east of the site please refer to Figure 3. This area had recently been disturbed at the time of survey.

Nature Conservation Evaluation

- Broad leaved semi-natural woodland: This habitat is not very widespread in the local area, and it contains good species diversity and therefore it is considered to be of local value. The value of the woodland as a habitat for protected species may be greater than 'local'; this will be informed by further survey.
- Broad leaved plantation woodland: This habitat contains good species diversity and therefore it is considered to be of local value. The value as a habitat for protected species may be greater than 'local'; this will be informed by further survey.
- Scattered broad leaved trees: The mature scattered broadleaved trees are considered to be of value within the context of the survey area. Immature trees are considered to be of negligible conservation value.
- Semi-improved grassland: Although common and widespread both within the survey area and the wider area, the more diverse areas of semi-improved grassland are considered to be of value within the context of the survey area.
- Improved grassland: Due to the low species diversity this habitat is considered to be of negligible conservation value.
- Tall Ruderal: Due to the low species diversity this habitat is considered to be of negligible conservation value.

- Mesotrophic standing water: The water bodies present on site, particularly those which are permanent features, increase the biodiversity of the survey area. The standing water is therefore considered to be of local conservation value. The value of the standing water as a habitat for protected species may be greater than 'local'; this will be informed by further survey. Standing water is registered as a broad habitat on Barnsley Biodiversity Action Plan.
- Arable land: Due to the low species diversity this habitat is considered to be of negligible conservation value.
- Species rich intact hedge: Species rich hedgerows are designated on both the local and UK BAP and therefore considered to be of district value.
- Species poor intact hedge: A less common habitat within the survey area, and of potential value as wildlife corridors. This habitat is therefore considered to be of value within the context of the survey area.
- Species poor defunct hedge: Due to the low species diversity and reduced potential to be utilised as a corridor for species this habitat is considered to be of negligible conservation value.
- Species rich hedge with trees: Species rich hedgerows with trees are designated on both the local and UK BAP and therefore considered to be of district value. In addition mature trees present within this habitat may provide a habitat for protected species and therefore may be considered greater than 'local'; this will be informed by further survey.
- Species poor hedge with trees: This habitat type is common and widespread in the local area. However, the mature trees present within this habitat may provide a habitat for protected species and therefore may be considered greater than 'local'; this will be informed by further survey.
- Dry ditch: A common habitat both within the survey area and wider area supporting low species diversity and therefore considered to be of negligible conservation value.
- Bare ground: A small area of this habitat type is present within the site. This is a common habitat in the wider area and supports low species diversity. This habitat within the site is considered to be of negligible conservation value.

Target notes

3.2.28 The following features of interest have been target noted (TN) on the Phase 1 maps:

Figure 3 – Southern section

TN 1 – Dry ditch with tall ruderal species present and scattered trees. It is likely that this ditch is wet sporadically throughout the year.

TN 2 – 5 Lapwings observed flying over this area, potential breeding bird site.

Figure 4 – Central sections

TN 3 – Pond 1 suitable to support several protected and notable species for example great crested newts.

TN 4 – Pond 2 suitable to support several protected and notable species for example great crested newts.

TN 5 – Wet ditches suitable to support several protected and notable species for example water vole and otter.

Figure 5 – Central sections

TN 6 – Large English oak with several cracks along a linear feature, suitable to support protected and notable species.

TN 7 – Beech woodland suitable to support several protected and notable species for example great crested newts.

TN 8 – Norway maple with several cracks and potential to support protected or notable species for example bats.

TN 9 – Two Norway maples with several cracks and potential to support protected or notable species for example bats.

TN 10 – Ash tree with a large dead section suitable to support protected or notable species for example bats.

TN 11 – Ash tree with several cracks and fissures suitable to support protected or notable species for example bats.

TN 12 – Ash tree with large cracks suitable to support protected or notable species for example owls and bats.

Figure 6 – Northern section

TN 13 – Improved grassland area with refugia present and tussocky grasses suitable to support protected or notable species for example reptiles.

TN 14 – Area of improved grassland that has previously been wet.

TN 15 – Two skylark observed in this area, potential breeding bird site.

TN 16 – Pond 4 suitable to support several protected and notable species for example great crested newts.

Badger

3.2.29 Areas of woodland, and hedgerows within the site were identified as suitable to support badger; however no direct evidence of this species was noted during the survey.

Otter

- 3.2.30 The survey area contained limited habitats with the potential to support otter. The ponds and wet ditch systems were identified as having some potential; however no direct evidence of this species was incidentally noted during the survey. In addition the river Dearne to the west of the site (separated from the site by Park Spring road) has potential to support otter. Otter are named as a priority species on Barnsley Biodiversity Action Plan.

Water vole

- 3.2.31 The survey area contains limited habitats with the potential to support water vole. The ponds and wet ditch systems were identified as having some potential; however no direct evidence of this species was incidentally noted during the survey. Water vole are named as a priority species on Barnsley Biodiversity Action Plan.

Dormice

- 3.2.32 The survey area contained limited habitats with the potential to support dormice. The hedgerow systems were identified as having some potential; however there was limited undergrowth to the hedgerow systems and the area is outside of the main geographical distribution for dormice.⁹ No direct evidence of this species was incidentally noted during the survey.
- 3.2.33 This species is not considered further in this assessment.

Bats

- 3.2.34 The survey area contains habitats with the potential to support bats. Foraging and commuting habitats for bats were identified on site in particular the woodland habitats, hedgerow systems and ponds and wet ditch systems. Pipistrelle bats are named as a priority species on Barnsley Biodiversity Action Plan.
- 3.2.35 Habitats with the potential to support roosting bats identified during the survey include mature trees within the woodland habitats and along the hedgerow systems within the central area of the site (TN 8 – TN 12).

Birds

- 3.2.36 The survey area contains suitable habitat for foraging, roosting and breeding birds.
- 3.2.37 During the survey five lapwings were observed flying over the area to the south of the site (TN 2). In addition two skylark were flushed from the semi-improved grassland areas to the north of the site (TN 15). Skylark are species named on the Barnsley Biodiversity Action Plan.

Reptiles

- 3.2.38 All habitats on-site aside from the bare ground / hardstanding are suitable for use by common species of reptiles e.g. slow worms (*Anguis fragilis*), adder (*Vipera berus*), grass snakes and common lizards (*Zootoca vivipara*). Suitable habitat is present to support these species in both summer and winter (during hibernation). Reptile habitat

⁹ English Nature (2006). Dormice conservation handbook. English Nature, Peterborough.

was also identified along a hedgerow in the centre of the site (Figure 5 TN 13) and associated with hedgerow and trees with refugia present.

Amphibians

3.2.39 The ponds on site provide suitable habitat for amphibians including great crested newts. Ponds 1, 2 and Pond 4 (TN 3, 4 and 16 respectively) had potential to support great crested newts. The wet ditch systems adjoining these ponds were also identified as having some potential.

3.2.40 Areas of tussocky grassland and hedgerows systems on site were identified as having the potential to support hibernating amphibian species including great crested newts.¹⁰ Great crested newts are named as a priority species on Barnsley Biodiversity Action Plan.

White-clawed crayfish

1.1.2 It is not considered that there are any habitats present on site with potential to support white-clawed crayfish.

3.2.41 This species is not considered further in this assessment.

Invertebrates

3.2.42 The limited variety of common habitats on site provides a limited potential to support terrestrial invertebrate species. Aquatic habitats on site are considered to provide limited habitat for common aquatic invertebrates.

3.2.43 Invertebrate species are not considered further in this assessment.

Flora

3.2.44 The habitats present in the survey area are common and widely represented in the local area and it is considered likely that the flora of the site is limited to common and widespread species.

3.2.45 No invasive or injurious plants were recorded during the survey.

3.2.46 No species of flora are considered further in this assessment.

¹⁰ English Nature (2001). Great crested newt mitigation guidelines. English Nature.

SECTION 4

DISCUSSION AND RECOMMENDATIONS

4 DISCUSSION AND RECOMMENDATIONS

4.1 Discussion and specific recommendations

4.1.1 The proposed development of a wind farm would be unlikely to result in any significant levels of habitat loss. The current indicative location of wind turbines are in areas of limited habitat interest and some of the required access routes already exist in the form of tracks although improvements/widening and/or additional routes are likely to be required. Some temporary loss is additionally anticipated for laydown areas and site compounds however the final locations and layout are yet to be confirmed.

4.1.2 The legislative and policy requirements for the habitats and species described in this section are presented in detail within Appendix A.

Non-Statutory Designated Sites

4.1.3 The site is located centrally between the two locally designated areas that have been recorded in the search area. Both of these designated areas have been noted to contain ornithological interest. Given the site's proximity (less than 1.5 km), and position in relation to these designated areas, consideration should be given to potential impacts on the ornithological interest.

UK and Local BAP Habitats

4.1.4 On site there are two priority habitat and one broad habitat which are featured within the Barnsley Biodiversity Action Plan:

- I. *Species rich hedgerows* (also a UK BAP Habitat). This is a priority habitat on Barnsley Biodiversity Action Plan. Dependent on the access route for the construction stage of the developmental proposal this habitat may be directly or indirectly affected by the development and as such mitigation/compensation may be required. Options may include the protection of habitat *in-situ* or its reinstatement post-construction.
- II. *Species rich hedgerows with trees* (also a UK BAP Habitat). This is a priority habitat on Barnsley Biodiversity Action Plan. Dependent on the access route for the construction stage of the developmental proposal this habitat may be directly or indirectly affected by the development and as such mitigation/compensation may be required. Options may include the protection of habitat *in-situ* or its reinstatement post-construction.
- III. *Standing open water*. This is a broad habitat on Barnsley Biodiversity Action Plan. Dependent on the access route for the construction stage of the developmental proposal this habitat may be directly or indirectly affected by the development and as such mitigation/compensation may be required. Options may include the protection of habitat *in-situ* or its reinstatement post-construction.

Badger

4.1.5 Badgers and their setts are protected under the Protection of Badgers Act (1992). As such it is an offence to wilfully take, kill, injure or ill-treat a badger, or possess a dead badger or any part of a badger.

4.1.6 There are habitats with the potential to support badger present within the survey area. In order to comply with the legislation protecting this species, further surveys are recommended for areas within 30 m of the proposed development (to including all associated access and laydown areas).

4.1.7 Badger surveys can be carried out at any time of year, however, dense vegetation growth during the peak summer months can obscure signs of activity.

Otter

4.1.8 Otters are protected under the Wildlife and Countryside Act (1981, as amended) and the Conservation of Habitats and Species Regulations (2010). It is therefore illegal to deliberately capture, injure or kill an otter, possess an otter (dead or alive), or any other part of an otter, or intentionally or recklessly disturb otters. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a holt or other resting place used by an otter.

4.1.9 There are habitats present on site with limited potential to support otter and due to the close location of the River Dearne it is considered that otter may be commuting through the site. Further detailed surveys are recommended to establish the extent of use of the site by these species.

4.1.10 Otter surveys can be carried out at any time of year but not following heavy rain. Dense vegetation growth during the peak summer months can obscure signs of activity.

Water vole

4.1.11 The water vole is protected under the Wildlife & Countryside Act (1981, as amended). This makes it an offence to deliberately capture, injure or kill a water vole and to intentionally or recklessly disturb water voles. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by a water vole.

4.1.12 There are habitats present on site with limited potential to support water vole including the ponds and wet ditch systems. Therefore, further detailed surveys are recommended to establish the extent of use of the site by these species.

4.1.13 Water vole surveys can be conducted in the period April-September, however; dense vegetation growth during the peak summer months may obscure signs of activity.

Bats

4.1.14 Bats are protected under the Wildlife and Countryside Act (1981, as amended) and the Conservation of Habitats and Species Regulations (2010). It is therefore illegal to deliberately capture, injure or kill a bat, possess a bat (dead or alive), or any other part of a bat, or intentionally or recklessly disturb bats. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by a bat.

4.1.17 The survey area and its surrounds provide suitable habitats for a range of bat species for roosting, commuting and for foraging. The proposed development of a wind farm has the potential to affect some habitat potentially used by bats for foraging, roosting (mature trees) and commuting therefore further surveys are recommended to

establish the presence / absence, species, level and type of usage of the area by bats.

- 4.1.18 There is at the present time uncertainty as to the levels of impacts wind farms can have on bat populations, this uncertainty has led to the statutory agencies taking a precautionary approach in the level of information they consider appropriate to identify potentially significant effects. To ensure a robust level of information is presented with the planning applications it is recommended that bat surveys consider adoption of the survey method guidelines issued by Natural England for bats and onshore wind farms.¹¹ New guidance is currently under consultation.

Birds

- 4.1.19 All birds are protected under the Wildlife and Countryside Act, 1981 (as amended) during the nesting season (generally taken to be between March and August inclusive). It is illegal to kill, destroy or damage any bird, its nest, eggs or young. Some species have extra protection with regard to reckless disturbance; these species are included in Schedule 1 of the Wildlife and Countryside Act (1981, as amended).
- 4.1.20 The site contains suitable habitat for birds and the proposed development will potentially affect parts of this habitat. Further detailed surveys to establish the impacts of the development on birds have been commissioned separately.

Great Crested Newts

- 4.1.21 Great crested newts are protected under the Wildlife and Countryside Act (1981, as amended) and the Conservation of Habitats and Species Regulations (2010). It is therefore illegal to deliberately capture, injure or kill a great crested newt, possess one (dead or alive), or any other part of a great crested newt, or intentionally or recklessly disturb great crested newts. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by a great crested newt.
- 4.1.22 The site contains habitat with the potential to support great crested newts, suitable breeding habitat and potential hibernation grounds. Subject to the proposed development layout the presence of this species would potentially comprise a constraint due to the protection it is afforded. Therefore further consideration of this species is recommended to ensure legislative compliance.

Reptiles

- 4.1.23 The four common reptile species, adder, grass snake, common lizard and slow worm, are protected under Schedule 5 of the Wildlife and Countryside Act (1981 as amended) against deliberate and/or intentional killing, injuring and trade.
- 4.1.24 The site contains habitats with the potential to support reptile species, including grassland, hedgerows and raised banks. An area to the north of the site (TN 13) was identified as having potential to support hibernating reptiles.
- 4.1.25 Subject to the final design further survey and/or mitigation works may be required for areas impacted by the proposed development works. If reptiles are present

¹¹ Natural England Technical Information Note (TIN051). (2009). Bats and Onshore Wind Turbines. *Interim Guidance* Natural England, Peterborough.

appropriate mitigation would ensure compliance with the legislation protecting these species.

Invertebrates

- 4.1.26 The site contains common habitats which were considered to have the potential to support common and widespread invertebrate species. No further survey works are required.

Flora

- 4.1.27 The survey area consists of locally widespread habitats which are likely to contain common species. No records of protected or notable plant species have been found therefore no further surveys are considered necessary. The majority of the habitats on site are to be retained and therefore as such no additional botanical surveys are required.

4.2 Recommendations Summary

- 4.2.1 According to the current design the following additional species specific surveys are recommended.

- Badger assessment;
- Combined otter and water vole surveys;
- Great crested newt surveys;
- Reptile mitigation works; and
- Bat surveys.

- 4.2.2 This is based on the developmental proposal as received. If the final layout will be significantly different and potentially affect different habitats other further detailed surveys may be required.

General recommendations

- 4.2.3 All the species surveys recommended above should be undertaken prior to the commencement of the works to inform the baseline and impact assessment of the planning application for the proposed wind farm. Where necessary mitigation and/or compensation measures should be identified following the findings of the surveys and in consideration of the proposed scheme design.

- 4.2.4 By considering the existing ecological conditions of the site and its surroundings it is recommended that opportunities for mitigating any protected and/or notable species is incorporated as appropriate into the proposed works.

- 4.2.5 As such, the UDP states in Policy GS15:

‘The council will seek to safeguard important habitats and species from any activities which would cause disturbance, pollution or other damage. All development proposals should, where appropriate, include measures to conserve and enhance

existing features of nature conservation interest and to create new nature conservation areas.'

SECTION 5

CONCLUSIONS

5 CONCLUSIONS

- 5.1.1 The site at Park Spring in Barnsley consists of arable and improved grassland bordered by species poor hedgerow systems and areas of young broad leaved plantation woodland. The site is intersected by a series of wet and dry ditch systems and there are five ponds on site. Habitats are all common and widespread although several habitats are of local conservation value and some have the potential to support protected and notable species that may increase their conservation value to a district level.
- 5.1.2 LBAP habitats present on site are limited; small areas of open standing water, including ponds and wet ditches and a small area of species rich hedgerow and species rich hedgerow with trees. Dependent on the access route for the construction stage of the developmental proposal these habitats may be affected by the wind farm.
- 5.1.3 The site has the potential to support several protected and notable species including bats, birds, great crested newts, badger, otter and water vole.
- 5.1.4 Further detailed surveys are recommended in order to facilitate an adequate assessment of the likely effects of the development on designated sites and protected and notable species. Based on the current developmental proposal the following additional species specific surveys are recommended, in order to adequately inform the planning application;
- i Badger Assessment;
 - ii Combined water vole and otter survey;
 - iii Amphibian survey (great crested newts);
 - iv Reptile mitigation works; and
 - v Bat survey.

SECTION 6

APPENDICES

SUMMARY OF LEGISLATION AND GUIDANCE FOR NOTABLE AND PROTECTED SPECIES AND HABITATS IN THE UK

The following Appendix sets out details of legislation within the UK and how this legislation applies to particular species groups. The key pieces of international and national legislation are described after which specific legislation pertaining to species or species groups are described in turn. The list is not exhaustive but has been tailored to suit this site.

International and national legislation

Conservation of Habitats and Species Regulations 2010

In the UK the Council Directive 92/43/EEC has been transposed into national laws by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended), and the Regulations (Northern Ireland) 1995 (as amended). The Regulations came into force on 30 October 1994, and have been amended several times. Subsequently the Conservation of Habitats and Species Regulations 2010 was created which consolidates all the various amendments made to the 1994 Regulations in respect of England and Wales and is commonly known as the 'the Habitats Regulations'. In Scotland the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the 1994 Regulations. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

The Regulations contain five Parts and four Schedules, and provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) is the principle mechanism for the legislative protection of wildlife in Great Britain. However it does not extend to Northern Ireland, the Channel Islands or the Isle of Man. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain.

Other Legislation

Wild Mammals (Protection) Act 1996

The Act protects wild mammals from malicious or intentional harm.

Invasive Species

Schedule 9, Section 14 of the Wildlife and Countryside Act (1981, as amended) prohibits the introduction into the wild of any species that is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state, or any species of the 39 plants listed on Schedule 9.

The frequently encountered invasive species within proposed development sites include Japanese knotweed (*Fallopia japonica*); Giant hogweed (*Heracleum mantegazzianum*); Himalayan balsam (*Impatiens glandulifera*); Floating pennywort (*Hydrocotyle ranunculoides*); New Zealand pygmyweed (*Crassula helmsii*); Rhododendron (*Rhododendron ponticum*); and certain hybrids of the above, some species may be native yet are listed for conservation purposes.

Plant or soil material contaminated by Japanese knotweed that is to be discarded is considered to be a 'controlled waste' under the Environmental Protection Act 1990 (EPA 1990). It is an offence to deposit, treat, keep, or dispose of controlled waste without a licence. Furthermore knotweed that has been cut down and removed must be received by an authorised person to be disposed of correctly. A licence can be obtained from the Environment Agency (EA). The release or planting of a listed species in the wild can be permitted under a licence granted by the relevant statutory body.

Invertebrates

A number of invertebrates such as stag beetles (*Lucanus cervus*), silver studded blue butterfly (*Plebejus argus*) or white letter hairstreak (*Stymondia w-album*) are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended). This legislation makes it illegal to intentionally kill, injure, or take a protected invertebrate, or to damage, destroy, or obstruct access to any structure or place used for shelter or protection by such a species; and disturb any protected species occupying such a structure or place.

Three invertebrates are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010, the large blue butterfly (*Maculinea arion*), fisher's estuarine moth (*Gortyna borelii lunata*), and lesser whirlpool ram's-horn snail (*Anisus vorticulus*). It is an offence deliberately to kill, capture, or disturb a listed species, or to damage or destroy the breeding site or resting place of such an animal.

Amphibians

There are four common species amphibian species, common frog (*Rana temporaria*), common toad (*Bufo bufo*), palmate newt (*Triturus helveticus*), and smooth newt (*Triturus vulgaris*). All of the four common species are protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) against deliberate and/or intentional killing, injuring and trade.

Great Crested Newts and Natterjack Toads

Great crested newts (*Triturus cristatus*) (GCN) and natterjack toads (*Bufo calamita*) are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) and the Conservation of Habitats and Species Regulations 2010. It is illegal to possess a protected species (alive or dead), deliberately capture, injure or kill, to intentionally or recklessly disturb, or to deliberately take or destroy the eggs of these protected species. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by these protected species. All life stages of great crested newts and natterjack toads are afforded the same level of protection.

In order to undertake any activity which would otherwise result in any of the above offences being committed, it may be necessary to obtain a European Protected Species (EPS) licence from the relevant statutory body (Natural England (NE), Countryside Council for Wales (CCW) or Scottish natural Heritage (SNH)). It is possible to undertake surveys which would otherwise involve unlawful acts, such as disturbance, by obtaining a survey license which provides authorisation for scientific and educational purposes

Reptiles

The four common reptile species, adder (*Vipera berus*), grass snake (*Natrix natrix*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*), are protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) against deliberate and/or intentional killing, injuring and trade.

If common reptile species are found to be present or considered potentially present within a proposed development site. To ensure that no subsequent offence will be committed a precautionary method of

SECTION 6

APPENDIX A

working (written by a suitably qualified ecologist) and submitted to the relevant authority may be required to enable works to proceed with limited risks of offences being caused.

Birds

All birds, their nests and eggs are protected by the Wildlife and Countryside Act (1981, as amended). It is an offence to intentionally kill, injure, or take any wild bird, or take or destroy an egg of any wild bird. It is also an offence to damage or destroy the nest of any wild bird (whilst being built, or in use). Therefore, clearance of vegetation within the site boundary, or immediately adjacent to the site during the nesting season could result in an offence occurring under the Act. The bird breeding season can be taken to run between the 1 February and 31 August and is subject to geographical and seasonal factors. There are 79 species of birds listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Mammals

All wild mammals are protected under the Wild Mammals (Protection) Act 1996 from certain cruel acts; and for connected purposes. It is an offence to mutilate, kick, beat, nail, or otherwise inflict unnecessary suffering on any wild mammal.

Badgers

Badgers (*Meles meles*) are protected under the Protection of Badgers Act (1992). As such it is an offence to wilfully take, kill, injure or ill-treat a badger, or possess a dead badger or any part of a badger. Under the Act their setts are also protected against obstruction, destruction, or damage in any part.

Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England takes this definition to include seasonally used setts.

Work that may disturb badgers or their setts is illegal without a development licence from the relevant statutory body (NE, CCW, SNH). As a precautionary principle, a buffer distance between a badger sett and the works will be determined, based upon guidance from an appropriately experienced ecologist. This buffer distance should be based upon the size and activity levels at the sett, the topography between the sett and the works and the nature of the works.

Bats

All native UK bat species are fully protected by UK law under Schedule 5 and 6 of the Wildlife and Countryside Act (1981, as amended), and under Schedule 2 of the Conservation of Habitats and Species Regulations 2010. It is illegal to deliberately capture, injure or kill a bat or to intentionally or recklessly disturb bats. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by a bat.

Any activity that would result in a contravention of the above legislation would likely require an EPS licence from the relevant statutory body (NE, CCW or SNH). Works or mitigation activities involving interference with bats or bat shelters must be carried out by a licensed bat worker.

Dormice

Dormice (*Muscardinus avellanarius*) are protected under the Wildlife and Countryside Act (1981, as amended) and are listed in Schedule 2 of the Conservation of Habitats and Species Regulations 2010. Under the current legislation it is illegal to intentionally or deliberately kill, injure or capture dormice, deliberately disturb dormice (whether in a nest or not); or to damage, or destroy dormouse breeding sites or resting places.

Any activity that would result in a contravention of the above legislation would likely require an EPS licence from the relevant statutory body (NE, CCW or SNH).

Otters

The otter (*Lutra lutra*) is fully protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) and are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2010. It is therefore illegal to deliberately capture, injure or kill an otter, possess an otter (dead or alive), or any other part of an otter, or intentionally or recklessly disturb otters. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a holt or other resting place used by an otter.

Any activity that would result in a contravention of the above legislation would likely require an EPS licence from the relevant statutory body (NE, CCW or SNH).

Water voles

Water voles (*Arvicola amphibius*) are protected under the Wildlife and Countryside Act (1981, as amended). It is an offence to possess, control or sell water voles or to intentionally kill, injure or take water voles. It is also an offence to intentionally or recklessly damage, destroy or obstruct access to a place that water voles use for shelter or protection or disturb water voles whilst using such a place.

A licence is required for catching/handling water voles, or for field surveys that are intrusive or disturbing where the surveyor suspects water voles are present. A licence can be obtained by applying to the relevant statutory body (NE, SNH, and CCW,)

General Guidance on European Protected Species Licence Applications

Should a European Protected Species (EPS) be found on a development site, and where best practice guidance either cannot be followed or is not applicable an EPS licence will be required. The licence permits operations that fall outside the Good Practice Guidance an application for such a licence should be made to the relevant statutory body (NE, CCW or SNH) before any works can proceed. It is also possible to obtain a general licence that may cover an area rather than applying in each individual case for a separate specific/individual licence

Should the survey information be considered insufficient or the statutory body is not satisfied with the application, the licence application may be refused. This could potentially result in significant delays to a project, if not considered in time; however, early consideration of the potential presence of EPS on a site and an assessment of suitable mitigation measures to derogate such possibilities early in a project will negate this potential delay.